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UNITED STATES DEPARTMENT OF AGRICULTURE
Office of Foreign Agricultural Relations

TOBACCO PRODUCTION AND CONSUMPTION
IN INDIA AND BURMA

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N O T E

The term "India" as used herein is inclusive of the British Provinces and Indian States generally included in greater India, but is exclusive of Burma. A separate section is devoted to Burma.

All weights used are, unless otherwise stated, United States standards.

Quotations of prices and values are, unless otherwise stated, in United States currency. Conversions have been made at the rupee exchange rate applicable for the date or period to which prices and values refer. From 1900 to 1920, yearly average exchange rates fluctuated between 32 and 39 United States cents per rupee; from 1921 to 1923, between 25 and 31 cents; from 1924 to 1931, between 32 and 37 cents; for 1932 and 1933, between 26 and 32 cents; and from 1934 to 1938, between 37 and 38 United States cents per rupee.

TOBACCO PRODUCTION AND CONSUMPTION IN INDIA

Since about the beginning of the 17th century, India has been one of the leading tobacco producing countries outside of the Western Hemisphere. In modern times production in India has been reported at something near one-fifth to one-fourth of the world total and has been roughly equal to the production in the United States and in China, the two other leading tobacco producing countries of the world.

India's large production has been used primarily for domestic consumption. Exports have been relatively insignificant. During recent years, however, numerous British and Indian agencies, both official and private, have taken a more active interest in developing the country's production and export of both domestic and foreign types.

The most notable success with a foreign type of tobacco has been with American flue-cured, the production having been increased from about 2,600,000 pounds in 1931-32 to approximately 40,000,000 pounds in 1937-38. The production of American-type burley tobacco has also been found feasible, but as yet its production has not become significant.

Indian flue-cured is being used in domestic cigarette production in place of both American flue-cured and native types. It is also being exported to the United Kingdom, where increasing quantities are in demand as a substitute for American flue-cured. Indian burley is grown primarily for export to the United Kingdom. It is used there in pipe mixtures as a substitute for American burley.

India has never been among the important foreign markets for American tobacco. The annual import of American leaf and tobacco products, including re-shipments from the United Kingdom, has seldom reached 9,000,000 pounds. American farmers, therefore, are not greatly concerned with India supplying its own domestic requirements. They are, however, concerned with the possibility of a continuation of the rapid increase that has occurred during recent years in the export of Indian-grown American types.

It is the purpose of this study to bring together available information regarding all phases of the tobacco industry in India. The report concludes with statements indicating possible trends in production, consumption, imports, and exports for the next few years and their significance to tobacco farmers of the United States.

ORIGIN AND EARLY DEVELOPMENTS

Contemporary authorities on tobacco in India generally concede that it was not introduced into the country until after the discovery of America. There is disagreement, however, with respect to the date of its introduction. Some give 1508, whereas others report 1605 as the year when tobacco first became known in

India. 1/ It appears, however, that 1506 was too soon after the discovery of America for tobacco to have reached India; it is more likely that tobacco was not known there before 1560. Production probably began at a later date, perhaps between 1580 and 1605. 2/

There is much doubt regarding the source of seed from which the first tobacco was grown in India. Some authorities report that the first seed was brought from Brazil and other South American countries, whereas others report it as having been brought from Europe. It is probable that it came from a number of different sources at about the same time, since many varieties of both Nicotiana tabacum and Nicotiana rustica are known to have existed in India from early days. The first seed introduced from the United States of which there is record was in 1829 when experiments to improve tobacco in India were first made under the orders of the Court of Directors of the East Indian Company. Seed from Maryland and Virginia tobacco was used in the experiments and the tobacco produced from it was pronounced by dealers and manufacturers in London as the best samples of Indian tobacco they had seen up to that date (C). 3/ Seed from Ohio tobacco was reported to have been planted in 1866 (C). It appears that the cultivation of these American types expanded quite rapidly. Much of India's production today is of somewhat similar types.

Early Production and Use

Following its introduction, the cultivation and consumption of tobacco apparently expanded very rapidly. As early as 1617 its use had become so general that Emperor Jahangir prohibited smoking, since he believed it to have a very bad effect on the health and mind of young people. 4/ Smoking, which was reported to have been practiced by both sexes, was apparently the first method of consumption. 5/ Early reports make no reference to snuff taking or chewing. Pipe smoking seems to have been the most common method of smoking; a number of records mention pipes and supplies of tobacco having been presented as gifts to ruling princes and other notables.

1/ The different dates of introduction are apparently taken from writings of Sir George Watt, an authority on early history of commercial products in India. In his book "Dictionary of Economic Products in India," published in 1891, Watt gives 1605 as the year of introduction (A). In a later book, however, "Commercial Products of India," published in 1908, he mentions 1508 as the date of its introduction (B). (Letters in parentheses refer to literature cited; see page 75.)

2/ Early Chinese and Japanese writings indicate that the use of tobacco of American origin was first known some time between 1573 and 1591 and that cultivation was introduced between 1590 and 1600. The dates given for probable introduction into India are also supported by a statement in Watt's publication of 1891 in which he quotes Blochmann, a writer on Indian antiquities, as stating that, "It is known from the Maasir-i-Rapimi that tobacco came from Europe to the Dakhin, and from the Dakhin to Upper India during the reign of Akbar Shah (1556-1605), since which time it has been in general use."

3/ Letters in parentheses refer to literature cited (see page 75).

4/ Persons found guilty of using tobacco were punished by having their lips cut. Another punishment was forcing the accused person to ride on a donkey, face to tail, and with his face blackened (B).

5/ As early as 1614, the artist Floris produced a sketch of a Hindu woman of Masulipatam smoking tobacco (B).

Smoking of cheroots and bidies, and snuff taking and chewing began at a relatively early date. 1/ Cigars and cigarettes have come into use in more recent times, cigars probably about 1850 and cigarettes about 1895.

Early Trade 2/

Leaf tobacco and tobacco products have been articles of Indian commerce for some 300 years or more. Letters and invoices of shipments as early as 1619 speak of tobacco having been sent from India to Red Sea ports (B). There are also several records with early dates which show that tobacco was sent abroad, particularly to England, as gifts or as samples of leaf grown in the country (B,C). Quantities of tobacco and tobacco products were also imported at an early date. They were apparently first brought by Portuguese traders some time during the 16th century (B).

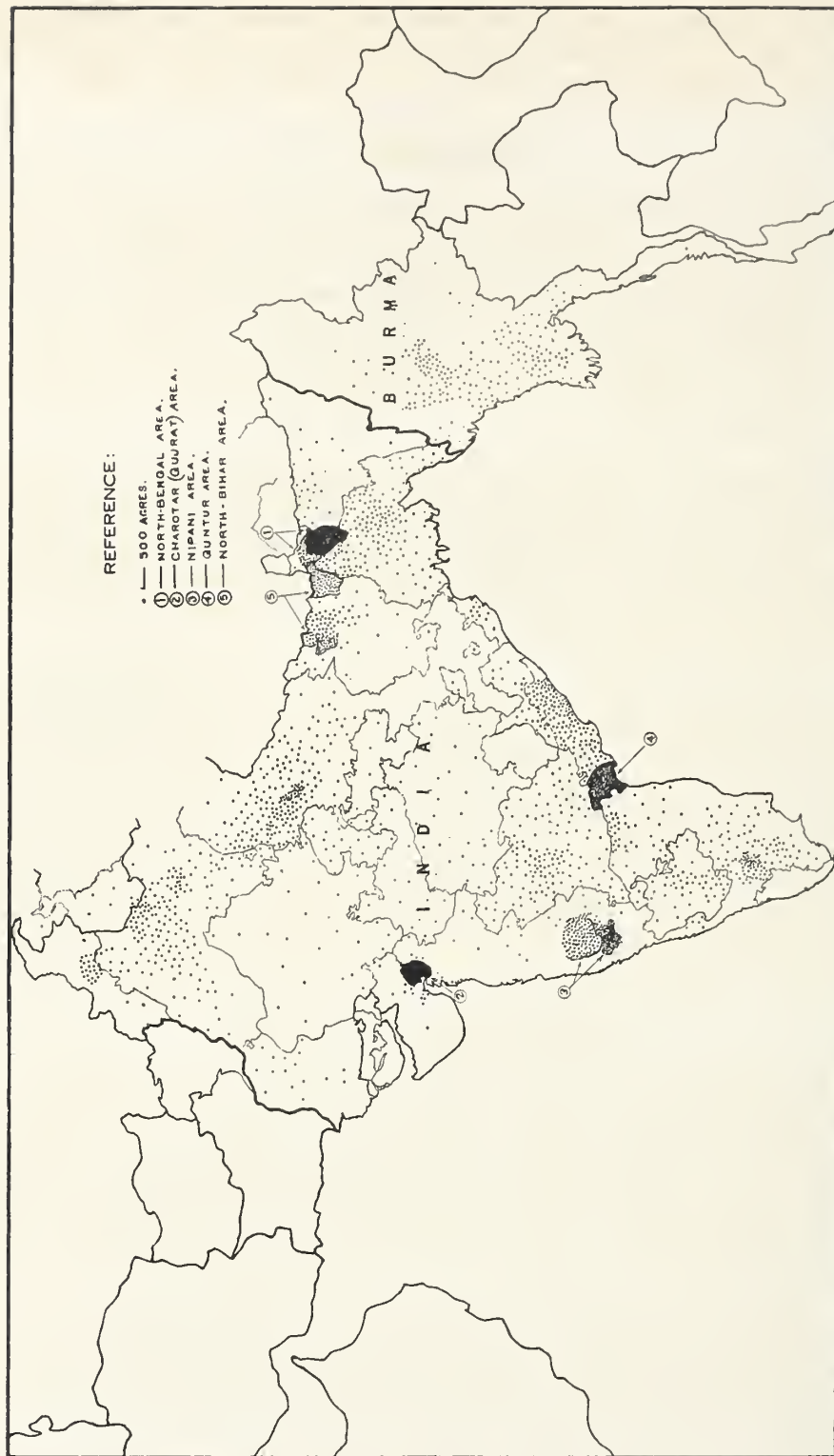
Official records of quantities exported began in 1872. For the fiscal year 1872-73 (April-March) exports of leaf totaled 17,136,000 pounds. By 1874-75 exports had increased to 33,412,000 pounds, which was the highest recorded until 1924-25. Leaf imports have never been large. They did not reach 1,000,000 pounds until 1906-07 and there has been only one year on record when they exceeded 7,000,000 pounds.

The destination of early exports and source of imports have not changed materially since records became available. Exports of leaf and all products have been largely confined to such nearby points as Aden, Straits Settlement, Ceylon, and the Maldives, and to the United Kingdom. In early days nearby points accounted for the largest volume, whereas in more recent times exports to the United Kingdom have been of greater importance. Until the beginning of domestic manufacture of cigarettes in the early 1900's, imports of leaf were largely from nearby points. Since 1900 an increasing proportion of the total has been accounted for by leaf imports from the United States and the United Kingdom, the latter largely American tobacco reshipped to India.

RECENT PRODUCTION AND TREND

Available official information indicates that for the past 20 years the annual production of tobacco in India has varied between 870,000,000 and 1,200,000,000 pounds. This compares with a range in the United States during the same period of from 1,005,000,000 to 1,648,000,000 pounds. The yearly acreage for India, which occupies about 0.4 percent of the country's total crop land, has varied from slightly over 1,000,000 acres to over 1,300,000 annually. Average yields per acre have varied from about 825 pounds to near 980 pounds. 3/ 1.

1/ Bidies are granulated tobacco rolled in the leaf of a species of Indian ebony.
2/ All import and export figures given under this section apply to the sea-borne trade of India, including Burma. Burma was not separated from India until April 1937.



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Fig. 1. Tobacco acreage in India and Burma, 1934-35

(Courtesy of the Agricultural Marketing Office of the Government of India)

Table 1.- Officially estimated acreage and production of tobacco in India by principal producing Provinces, 1928-29 to 1937-38 a/

Crop year (April-March)	Bengal	Bihar and Orissa	Bombay	Madras	Punjab	United Provinces	All others reported b/	Total
	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000
	: acres	: acres	: acres	: acres	: acres	: acres	: acres	: acres

ACREAGE

1928-29...	291	: 146	: 147	: 255	: 64	: 81	: 210	: 1,194
1929-30...	295	: 142	: 157	: 257	: 59	: 101	: 189	: 1,200
1930-31...	284	: 136	: 139	: 243	: 71	: 73	: 200	: 1,146
1931-32...	293	: 141	: 150	: 269	: 85	: 67	: 187	: 1,192
1932-33...	281	: 161	: 131	: 256	: 66	: 83	: 185	: 1,163
1933-34...	286	: 140	: 140	: 248	: 49	: 81	: 180	: 1,124
1934-35...	308	: 133	: 160	: 292	: 88	: 100	: 207	: 1,308
1935-36...	307	: 140	: 160	: 280	: 78	: 84	: 204	: 1,253
1936-37...	307	: 127	: 145	: 253	: 62	: 79	: 210	: 1,183
1937-38...	313	: 125	: 170	: 294	: 71	: 88	: 227	: 1,288

: Million: Million: Million: Million: Million: Million: Million: Million: Million
: pounds: pounds: pounds: pounds: pounds: pounds: pounds: pounds: pounds

PRODUCTION

1928-29...	273.3	: 145.6	: 116.5	: 300.2	: 53.3	: 109.6	: 73.8	: 1,073.0
1929-30...	277.8	: 150.1	: 85.1	: 304.6	: 49.3	: 154.6	: 82.8	: 1,104.3
1930-31...	268.8	: 145.6	: 69.4	: 273.3	: 60.5	: 98.6	: 94.0	: 1,010.2
1931-32...	273.3	: 141.1	: 94.1	: 318.1	: 67.2	: 105.3	: 87.3	: 1,086.4
1932-33...	311.4	: 129.9	: 78.4	: 309.1	: 67.2	: 123.2	: 94.1	: 1,113.3
1933-34...	275.5	: 118.7	: 62.7	: 289.0	: 44.8	: 112.0	: 78.4	: 981.1
1934-35...	322.6	: 132.2	: 96.3	: 342.7	: 85.1	: 145.6	: 78.4	: 1,202.9
1935-36...	289.0	: 116.5	: 103.0	: 295.7	: 73.9	: 127.7	: 98.5	: 1,104.3
1936-37...	300.2	: 114.2	: 78.4	: 297.9	: 65.0	: 125.4	: 132.2	: 1,113.3
1937-38...	291.2	: 116.5	: 98.6	: 280.0	: 65.0	: 141.1	: 152.2	: 1,144.6
:	:	:	:	:	:	:	:	:

Compiled from "Estimates of Area and Yield of Principal Crops in India, 1937-38," published by the Government of India, Department of Commercial Intelligence and Statistics.

a/ Does not include certain independent Indian States. All estimates are subject to considerable error; see footnote 1, page 6, for indication of reliability of estimates.

b/ Includes acreage and production for all years in the British Province of Assam, Central Provinces and Berar, Delhi, and Sind; and in the independent States of Baroda, Hyderabad, and Mysore. The acreage in the British North-West Frontier Province is included for all years but production is only included for 1936-37 and 1937-38. The acreage and production of Khairpur State (Sind) are included for the years 1934-35 to 1937-38, inclusive.

The reported high tobacco yields per acre in India are attributed in part to the extensiveness of heavy dark-leaf types and the care taken in cultivation, which includes irrigation of a substantial part of the crop. The chief factor contributing to reported high yields in many districts, however, is the inclusion in the yield of a part or all of the stalk. 1/

There has been no pronounced trend in acreage and production during the past two decades; however, official acreage and production figures during the past few years have both averaged somewhat higher than those of 15 to 20 years ago. The increase is supported by reported increases in the output of certain types of light tobacco used in the manufacture of cigarettes and bidies. These lighter types, which include American flue-cured, American burley, and a number of local varieties, are grown primarily in the Presidencies of Bombay and Madras. Each of these presidencies has shown an upward trend in acreage since 1917-18, accounting for a large part of the increase in the national total reported acreage.

Tobacco is grown by some 3,000,000 or more producers scattered throughout all India. Production is somewhat concentrated, however, in the following five districts: (1) North Bengal, (2) Gujarat, in the north of Bombay Presidency, (3) Nipani, in the south of Bombay Presidency, (4) Guntur on the east coast of Madras Presidency, and (5) North Bihar. The total acreage in these districts amounts to about 800,000 acres or about 65 percent of the country's total.

VARIATIONS, AND REASONS FOR VARIATIONS IN TYPES

Total tobacco production in India is made up of many distinct types and varieties of both the Nicotiana tabacum and Nicotiana rustica species. There are many more types grown and a greater range of distinction than in the United States. The number of types is probably as numerous as in China, but the range in distinction is not so wide. 2/

1/ Accurate information regarding acreage and production of tobacco in India is not available. The Central Agency that compiles estimates for all India merely combines the reported acreage and production figures furnished them by different political subdivisions and makes little attempt to check their accuracy. Various methods are used in obtaining estimates of acreage and production in different localities. In certain Indian States the land is all in the hands of the local government and is leased each year for specified crops. For such areas the acreages reported should be approximately correct. In other areas acreage estimates are obtained largely by approximation, the acreage in various crops being estimated in accordance with field observations and reports by local people. Methods of arriving at yields per acre are even more unreliable than those for estimating acreage. For most sections a figure representing an average or normal yield has been arrived at by field investigation and inquiry. The yield for a particular year is obtained by multiplying the average or normal yield by a condition figure. The average or normal yields used are sometimes yields of green uncured tobacco and in other cases yields of the whole tobacco plant including both leaves and stalk.

2/ For description of types of Chinese tobacco see "Tobacco Production and Consumption in China" F.S.-77, of the Foreign Agricultural Service, United States Department of Agriculture, released September 1938.

Factors which have resulted in the development of a large number of types and varieties include variations in the soil and climate of different sections of the country, the commingling of different types and differences in cultural and curing practices.

Location and Topography

In spite of its extensive area India is so situated that it does not have the extreme variations in climatic conditions as have the United States and China where the land areas extend from semi-tropical to north temperate regions.

India, with its 300,000,000 population, is a heart-shaped subcontinent covering an area of over 1,500,000 square miles (more than half the size of the United States), situated in South Central Asia between 8° and 37° north latitude. It is therefore all within tropical or south temperate areas. If transplanted in its own latitude to the Western Hemisphere, it would extend along the southern boundary of the United States for a distance of about 1,900 miles. It would cover part of Florida, most of the Gulf of Mexico, much of the States of Texas and New Mexico, a part of Arizona, practically all of old Mexico and a large area in the Pacific Ocean to a point about 1,400 miles due west from the Panama Canal.

The northern part of the country is made up of the foothills of the Himalayas and those of other mountain ranges to the northwest. The foothills extend southward to a wide plain region that drains to the east through the Ganges River into the Bay of Bengal and southwest through the Indus River into the Arabian Sea. This large plain area in the north and northwest extends south to a relatively high plateau which comprises something over half of the total area of the country.

The plateau is composed of extensive plains regions varying in altitude from 1,000 to near 3,000 feet with mountain peaks in some sections rising from the plains to a height of about 4,000 feet. It is cut by numerous rivers which in the northwest drain into the Ganges system and into the Arabian Sea north of Bombay. The northeast and most all of the southern section of the plateau drains through smaller rivers into the Bay of Bengal. The smaller rivers have relatively narrow valleys, but during the rainy monsoon season they carry heavy silt deposits to their mouths. This has resulted in the formation of a coastal plain on both sides of the peninsula. The plain on the east is somewhat more extensive than the plain on the west as the rivers which have formed it are larger and more numerous than is the case on the west coast.

Soils and Climate

Variations in climate and soil have been important factors in the development of different types of tobacco in India. Leaf grown in various sections of the country from seed of a particular type will, as a result of differences in climate and soil, have somewhat different characteristics. Considerable variation is also caused by the period of the year in which the crop is grown. Tobacco of the same variety produced during the summer monsoon period when rainfall is excessive, may have quite different characteristics from that grown in the same locality during the dry season.

From a temperature standpoint, most of India has a continuous growing season. The only districts for which there is a definite frost period are the mountain sections, a small portion of the northern plain region, and small sections of highest altitude in the plateau region. In the agricultural areas of these colder districts frosts do not usually occur except in the months of December and January and the average period of frost is only about 30 days. In other parts of the north plain region and sections of low altitude in the northern districts of the plateau region frosts sometimes occur during December and January. In these districts, however, there are many years completely free of frost, and when it does occur it is only for a few nights.

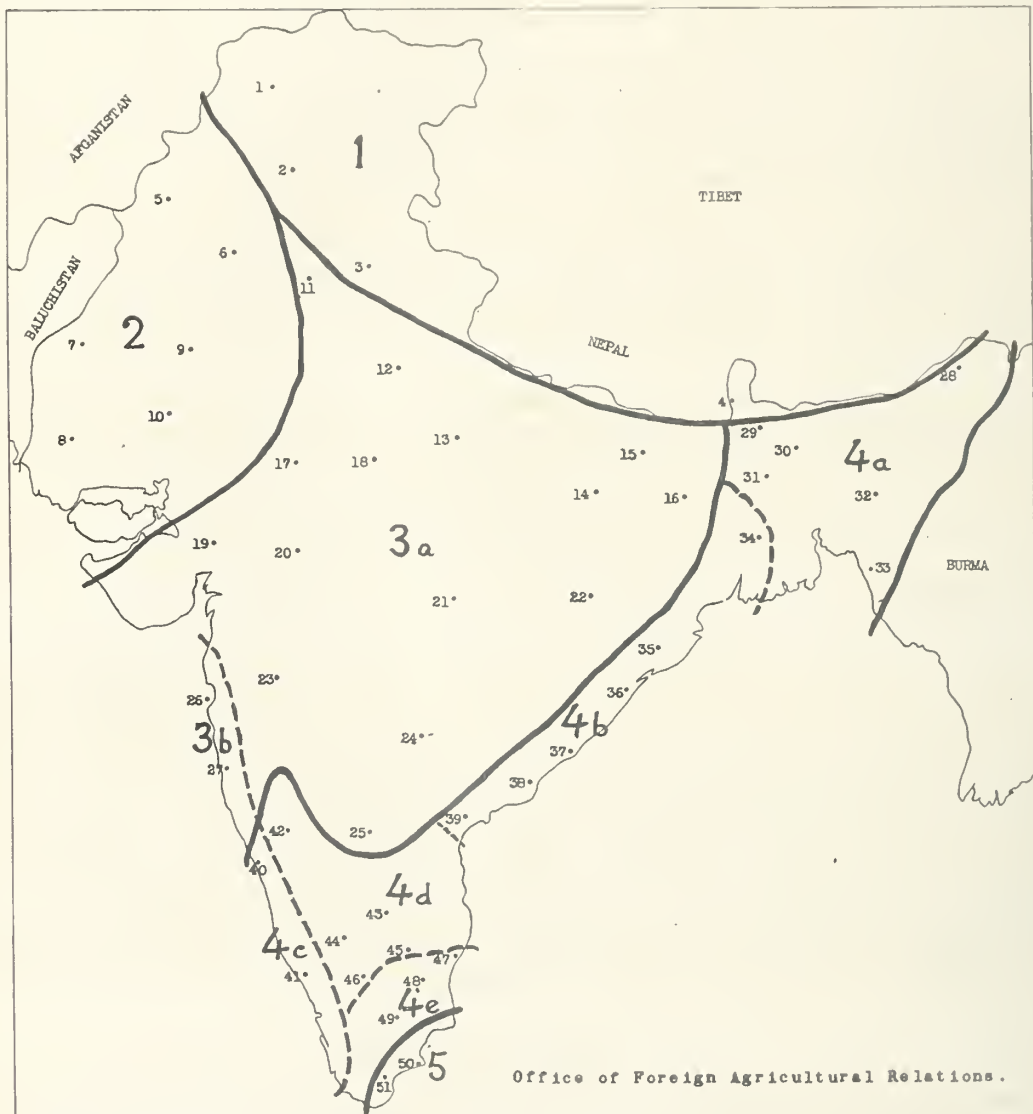
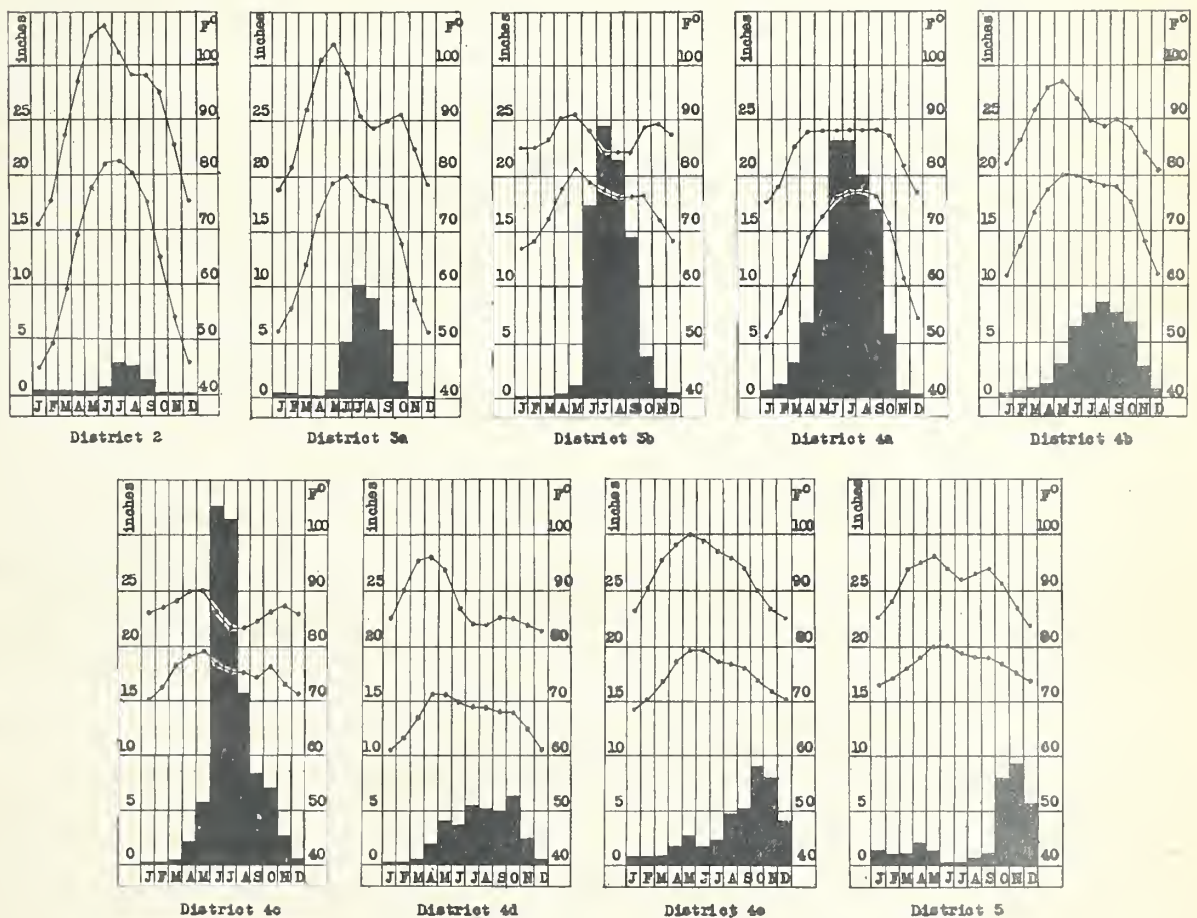


Fig. 2. Climatic Districts of India. The figures 1 to 51 designate the location of meteorological stations from which data were used in the preparation of figure 3.

Practically all of southern India, south of Bombay and Calcutta, is completely free from frost and in most districts temperatures during the winter months do not become low enough to check plant growth.

In spite of the absence of low temperatures the agricultural districts of India are subject to striking contrasts in meteorological conditions. In the extreme south, maximum monthly average temperatures throughout the year vary only about 10° to 15° . The range between monthly average maximum and monthly average minimum temperatures is also small and for the year averages about 10° . In contrast with these conditions, certain sections in the north-west have a range in monthly average maximum temperatures of 40° or more and a variation between average maximum and minimum temperatures of about 30° .



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Fig. 3. Monthly average maximum and minimum temperatures and monthly average rainfall by climatic districts of India.

Variations in rainfall are even greater than for temperature. Annual average precipitation varies from less than 5 inches in sections of the Sind Desert where crops can be satisfactorily grown only under irrigation, to 200 inches and over in certain sections of the northeast. Variations in monthly average rainfall during the year are extreme, ranging in many districts from less than one-half inch during dry months to over 30 inches in wet months. This sharp variation is due to seasonal changes in the monsoon winds which sweep the country. During the winter months the winds, as a result of a high pressure area in northern India and relatively low pressure in the south maintain a general north-to-south direction. The precipitation carried by them is small and most of it falls in the northwest (D). During the summer months, pressure areas are reversed and wind currents move from the south. These winds, which come from over the Indian Ocean, bring rains that cover most of the country. Mountain ranges and hills, however, tend to shut the rains off from some sections.

From an agricultural standpoint India can be grouped into five climatic districts, two of which need to be subdivided as a result of variation in rainfall. These districts are shown in the accompanying map, figure 2, and their rainfall and temperatures are shown in figure 3.

District 1, the north hills and mountain area, is relatively unimportant from an agricultural standpoint and, since rainfall and temperature conditions vary so widely, it is impossible to generalize regarding its climate. Districts 2 and 3 can be classed as having only 2 to 4 months of significant rainfall (a monthly average of 2 inches or more per month which is considered sufficient for plant growth). Districts 4 and 5 are areas with 4 to 8 months of significant rainfall.

Table 2.- Climatic regions and significant factors related to tobacco production

District 1 -- North hills and mountains

Tobacco season, approximate acreage, and types produced	Months of : signifi- cant rain-		Average maximum and : minimum temperatures:		Soil : descriptions	Topographical : features and climatic conditions
	fall and : average	Highest : annual a/	Lowest : months	months : :		
	Inches	Month	OF:Month	OF:		
Spring and summer months.	February	June	79: Dec.	49:	Loams to	Mountains and foot-
7,000 acres.	to		61:	35:	gravels with	hills of Himalayas
Largely medium	September				some of loam	with narrow valley
light <i>Nicotiana</i>	49.6	July	79: Jan.	45:	soils strong-	areas. Rainfall
<i>rustica</i> types			63:	32:	ly alkaline.	and temperatures
with limited a-	Annual					vary widely be-
reas native	54.1	Aug.	78: Feb.	47:		tween different
<i>Nicotiana taba-</i>			63:	34:		sections.
<i>cum</i> types; ex-						
perimental						
fields of flue-						
cured.						

Table 2.- Climatic regions and significant factors related to tobacco production, Continued

District 2 -- Northwest plains

Tobacco season, approximate acreage, and types produced	Months of : signifi- cant rain- fall and average annual a/		Average maximum and : minimum temperatures: Highest : Lowest months : months		Soil : descriptions	Topographical : features and climatic conditions
	Inches	Month	°F	Month	°F	
Largely summer and fall months.	July and August	May	105	Dec.	75	Fine silt loam and sandy clay
20,000 acres.	5.3		77		46	along streams;
Largely light and medium-light		June	107	Jan.	71	coarse sands
Nicotiana rustica types; experimental trials of flue-cured.	Annual 10.3		82		45	in deserts.
		July	102	Feb.	75	
			82		49	

District 3a -- Central plains and plateau

Largely fall and winter months.	June to September	Apr.	101	Dec.	79	Generally fer-	Plains and plateau
500,000 acres.	31.0		73		52	tile soils	areas with low
Largely light and medium-light	Annual	May	104	Jan.	78	varying from	mountains rising
Nicotiana tabacum types but extensive areas of dark Nicotiana rustica types. Includes several areas where flue-cured is being successfully grown on a small scale.	35.9		79		52	stiff clays to light sands.	from plateau areas.
		June	99	Feb.	82	Most are al-	Annual rainfall
			80		56	kaline in re-	increases from
						action.	west to east and
							from north to
							south across area.

District 3b -- West coast-north, coastal plains, and hills

Largely fall and winter.	June to October	Apr.	90	Dec.	87	Largely deriv-	Narrow coastal
20,000 acres.	82.4		77		68	ed from vol-	plain rising in
About 85 per-		May	91	Jan.	85	canic material;	east to mountains
cent light and medium-light	Annual		81		67	clays to loams	of about 3,000
Nicotiana tabacum types, 15 percent dark	84.4					in hills with	feet. Very heavy
Nicotiana tabacum and 2 percent flue-cured.		June	88	Feb.	85	sandy soils	rains, June through
			79		68	along coast.	August and rela-
							tively uniform
							temperature through-
							out year.

--Continued

Table 2.- Climatic regions and significant factors related to tobacco production, Continued

District 4a -- Northeast plains and hills

Tobacco season, approximate acreage, and types produced	Months of	Average maximum and minimum temperatures		Soil descriptions	Topographical features and climatic conditions
	signifi- cant rain- fall and average annual a/	Highest months	Lowest months		
	Inches	Month	°F:Month	°F:	
Fall and winter. 310,000 acres. Primarily dark types of both <u>Nicotiana tabacum</u> and <u>Nicotiana rustica</u> species. Experimental trials have proven the area generally unsatisfactory for flue-cured.	March to October 110.9 Annual 113.8	June July Aug.	88: 88: 88: Dec. Jan. Feb.	77: 75: 78: Gangetic alluvium or fine silty soil in the valleys and sandy to gravelly loams in hills. Most are alkaline in reaction.	Broad river valleys including the Ganges Delta and extending to the foothills of mountains in the north and east. Relatively uniform temperature March to October and very heavy rainfall especially on windward of mountains.

District 4b -- East coast plains and hills

Fall and winter. 150,000 acres, of which over 75,000 flue-cured. The remainder is largely medium-light and dark types of <u>Nicotiana tabacum</u> .	May to November 42.1 Annual 45.4	May June July	97: 94: 90: Dec. Jan. Feb.	81: 82: 86: Largely silt to sandy loams but some clay areas. All are alkaline in reaction.	Coastal plains rising to hills in the west. Rainfall sporadic and frequently light in fall months which reduces tobacco yields.
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District 4c -- West coast-south, coastal plains, and hills

Fall and winter. 30,000 acres. Medium-light and dark types of <u>Nicotiana tabacum</u> species.	April to November 105.1 Annual 106.2	Mar. Apr. May	88: 90: 90: Dec. Jan. Feb.	86: 71: 86: 70: Clays derived from laterite and sandy loams from harder rock formations.	Narrow coastal plains rising to mountains in east. Excessive rain in June, July, and August. Temperature relatively uniform throughout year.
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Table 2.- Climatic regions and significant factors related to tobacco production, Continued

District 4d -- South plateau

Tobacco season, approximate acreage, and types produced	Months of significant rainfall and average annual a/	Average maximum and minimum temperatures		Soil descriptions		Topographical features and climatic conditions
	Inches	Month	of	Month	of	
Higher areas during summer and fall, low areas in fall and winter.	May to November 32.0	Mar.	95	Nov.	84	Largely red slopes from low mountains in west through plateau region to coastal plain in east.
110,000 acres.	Annual 35.3	Apr.	96	Dec.	83	but some sections of clays and small areas of lateritic soils.
Largely medium-light and dark types of <i>Nicotiana tabacum</i> species, about 3,000 acres of flue-cured.		May	94	Jan.	85	throughout year. Moderate temperatures but wide daily fluctuations.
			71		61	

District 4e -- South plateau and plains

Largely fall and winter.	May and July to December	Apr.	98	Nov.	86	Red sandy to loam originating from harder rocks, lateritic, and black silts.	Southern tip of plateau and coastal plain area.
7,000 acres.	35.2	May	100	Dec.	85		Rainfall is concentrated in months August to December and temperature is relatively uniform throughout year.
Primarily dark <i>Nicotiana tabacum</i> types.	Annual 40.0	June	99	Jan.	86		
			79		68		

District 5 -- Extreme southern coastal plain

Fall and winter.	April, and October	Apr.	95	Nov.	87	Red silts and sandy loams.	Coastal plain bounded on west by low mountains.
10,000 acres.	to		78		75		
Primarily dark <i>Nicotiana tabacum</i> types.	December	May	96	Dec.	84		Rainfall is concentrated in months October through December, and temperatures are relatively uniform throughout the year.
	25.0		80		74		
	Annual	June	94	Jan.	85		
	32.2		80		73		

a/ Significant rainfall is considered as 2.0 inches or more per month, which is believed ample for the growth of crops.

Cultural Practices

Cultural practices as followed by the 3,000,000 or more farmers who grow tobacco in India differ materially and have a decided effect on the qualities of the leaf. Practices vary between sections of the country and between producers in the same locality.

Growing Season

Most of the country's tobacco is grown in the dry fall and winter months. It is only in the relatively unimportant producing districts in the State of Kashmir, certain other northern areas, parts of the arid districts of the northwest, and at places of highest altitude on the plateau that the crop is grown during summer months. In these districts seedbeds are started between the first of March and the middle of June and the crop is harvested during the late summer and fall months. Throughout most of the country and in all of the principal tobacco producing districts the bulk of the crop is planted immediately following the wet summer monsoon. Seedbeds are started during the latter part of the rainy season, which in general varies in different sections of the country from August to October. Transplanting is accomplished with the last rains and the crop is grown during the following dry months.

The small quantities of leaf grown during the rainy season in districts where rainfall is heavy is planted so that the harvest period will fall after the wet monsoon. Such leaf tends to be more rank and woody and is of darker color than that grown during the dry season, or that raised during summer months in areas of restricted rainfall.

Irrigation

Irrigation from ponds, wells, or canals is quite common in almost all districts. In many sections, however, the soil is a heavy clay loam with a high water table, and moisture retained in it from the rainy season is sufficient to mature a tobacco crop without irrigation. It is believed that for the country as a whole about 60 to 70 percent of the tobacco is grown without irrigation. Irrigation is usually resorted to in growing heavy dark types. With the exception of the tobacco grown in the extremely dry areas, irrigation is not generally used in the production of lighter types.

Crop Rotation

The practice of rotating crops is not followed as systematically as in the United States. The absence of frost in most sections of the country permits the production of two or three crops from the same field each year. The crops are selected largely in accordance with the food and cash-income requirements of the farmer. Attention to soil maintenance is usually of secondary importance. It is largely a matter of chance if a cropping system for a particular locality is one that will maintain or improve the soil. Frequently the same field is planted to tobacco during the fall and winter months year after year with only an intervening summer crop of rice or vegetables. In many cases where this practice is followed the soil is very fertile, often the site of an old village. In other cases the fields are continually irrigated by well water that has a high content of salt-petre or other nitrogen and potash compounds.

The principal crops grown in tobacco districts and with which tobacco is usually rotated are the spring and summer crops of rice, sorghum, corn (in the north), peanuts, barley, millet, sann hemp, and sesame seed; and the winter crops of wheat, gram, corn (in the south), flax, and rape seed.

Cultivation

Plowing and preparation of land before plants are set in the field are quite generally accomplished with the aid of animal labor. After this process, however, most of the cultivation is done by hand. Hoes are generally used for cultivating and weeding, but in districts where the soil is light it is not uncommon for weeds to be pulled and the soil worked without tools or with a small instrument similar to a garden trowel.

Transplanting is usually done when there are 4 to 6 leaves on a plant. If there is not sufficient rain at transplanting dates, the plants are watered from buckets. If there is too much sun, they are sometimes shaded with straw matting or other material. Plants are set in rows from 2 to 3 feet apart and from about 18 inches to 3 feet apart in the rows. The number of plants per acre varies from about 4,800 to near 13,000; the average number is about 6,000. In the case of flue-cured, the average is approximately 5,000 plants per acre.

Most of the tobacco is topped, but flue-cured types are usually allowed to seed. This is especially true in the principal flue-cured producing district of Guntur. The leaf in this district is grown on heavy fertile soils, and the plants are allowed to seed to insure the production of a thin leaf.

Fertilizers

Fertilizers are not extensively used. The use of commercial fertilizers is rare. Only small quantities of bean cake are used, and the use of manure is not extensive. 1/ Manuring is largely confined to limited applications of compost, the folding of small livestock (sheep and goats) on fields prior to their use for tobacco, and the plowing under of green manure crops.

In some districts where there is a high percentage of saltpetre and other nitrogen and potash compounds in the water, fertilization is accomplished along with irrigation.

Harvesting and Curing

Methods of harvesting and curing differ widely. It is quite common for tobacco of a single type to be either harvested or cured by two or more processes. Quite often tobacco from the same field is handled by different methods.

Harvesting is either by priming, stalk-cutting, or splitting. A portion of the native tobacco is primed by cutting out a small piece of stalk with each leaf. All of the flue-cured, however, and much of the native is primed as in America. Stalk cutting in most cases is limited to types that are ground-cured and especially to those for which the whole plant, stalk and leaves, is cured for use.

1/ Due to the fact that cattle comprise the majority of farm livestock and that the cow-dung is dried and used for fuel, there is a scarcity of manure for agricultural purposes.

Fig. 4. Harvesting Native tobacco by the splitting method. Note only small portion of stalk is left standing.

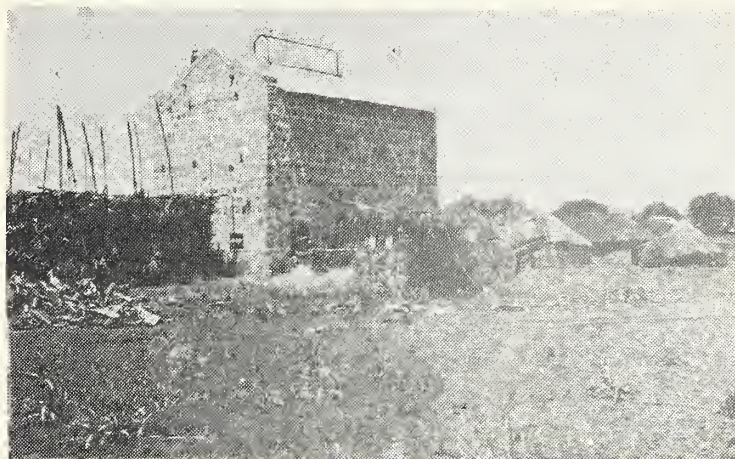


Fig. 5. A typical flue-curing barn in the Guntur district.

Fig. 6. Grass-curing of tobacco at Indore.



Splitting is a method of harvesting whereby the stalk is split in pieces having two or more leaves. The whole plant is harvested at one time and the pieces of stalk attached to the leaves are cured for use with the leaves (see figure 4).

In some districts two crops are harvested from the same plant. After the first crop is harvested suckers are allowed to develop, from which a second crop is taken.

Curing Processes

Curing processes can be roughly classified as follows: (1) Flue-curing, which, with the exception of experimental work, is limited to curing of American-type flue-cured. Approximately 3 percent of total production is cured by this process. (2) Air-curing, which is restricted in use to about 0.5 percent of the crop. (3) Rack-curing, a form of sun-curing, which is used for about 25 percent of total production. (4) Ground-curing, also a form of sun-curing, which accounts for about 65 percent of production. (5) Pit-curing, which is followed in curing about 6 percent of production.

The flue-curing process is similar to practices followed in the United States. Both coal and wood are used for curing, and there are a few experimental barns equipped with electrical heating apparatus. 1/

Air-curing is practiced in many of the tobacco districts, but is limited in use to only a small portion of total production and there are but few air-curing barns. Most of the curing by this process is accomplished by hanging tobacco in farm sheds or in shaded places under the eaves of farm buildings and houses. Its use is not restricted to any particular type.

There are several methods of rack-curing. The most common, which is widely practiced in the southern part of the country, consists in the leaves being strung close together and hung in the field between poles supported by stakes. The strings of leaves are placed about 6 inches to 10 inches apart. Thus, with the exception of outside leaves, only a small portion is exposed to direct sunlight. A method of rack-curing practiced to some extent in the northwestern part of the country consists in the leaves or the whole plant being spread on frames supported by poles about 3 to 6 feet above ground. The leaves or plants are turned so that all parts are exposed directly to the sun. In the northeast districts a portion of the tobacco is cured on movable racks that are carried inside at night to prevent damage from dew. In the southwest districts some of the native types are cured by a combination of air- and rack-curing. Temporary low, closed sheds made of matting supported by poles are built in the fields. Tobacco is harvested and piled in the sheds where it remains for 2 days. The leaves are then strung and hung in the sheds. About 7 days after hanging, the roofs of the sheds are removed and the leaves allowed to hang exposed to the sun until completely dry.

1/ Curing by electricity is being tried out by the Mysore Tobacco Company which is a semi-Government organization. Mysore State has a large hydroelectric plant in the tobacco producing district and current is obtainable at a low rate. So far experiments by the company in curing with electrical heat have not been satisfactory. The greatest difficulty has been in obtaining heat coils of sufficient resistance to stand the high current necessary to produce the heat required in the final stages of curing.

Ground-curing is most common in northern districts and in Bombay Presidency. The tobacco is either stalk-cut or split. The plants, or sections of them, are either laid on the ground separately or are laid together in rows with their butts resting on the ground and the stalks and leaves overlapping the preceding row of plants. In either case they are usually turned so that alternating sides of the leaves are exposed to the sun.

Pit-curing is a fermentation process accomplished by the use of pits or silos above ground. Most pit-cured tobacco is at least wilted before it is placed in pits or silos and, with the exception of types that have a heavy woody leaf with relatively low moisture content, the tobacco is first partly cured by ground-curing. The leaves, or whole plants, are packed in pits or silos and covered with straw and earth. In some cases they are allowed to remain in this condition undisturbed until fermentation has completely stopped. In most cases, however, they are removed from the pits or silos after a few days and further fermentation is accomplished by alternating ricking and airing.

Other curing processes that are rarely practiced are fire-curing, somewhat as practiced in America, and a special curing process that can be termed grass-curing. The grass-curing process has been developed and is recommended by the Institute of Plant Industry at Indore, Central India, as a method for curing American flue-cured type tobacco grown in the district. Tobacco in this district is harvested during the dry season when the ground is extremely dry and when there is no dew at night. It is primed and made into bundles of 4 to 12 leaves each, which are placed on a layer of cured grass about 9 inches thick. They are then completely covered by about 6 inches of grass and allowed to stay until a yellow color has developed. They are then removed and spread out on the grass in a single layer, covered over with about 2 to 3 inches of grass, and left undisturbed until the stems are completely dry (see figure 6).

Tobacco can be cured in the district by this process much more economically than it can be flue-cured. It approaches flue-cured leaf in color and is acceptable to some cigarette manufacturers.

Fermentation

The processes of air-curing, ground-curing, and frequently rack-curing are not allowed to continue until the midribs of the leaves are completely dry. In such instances the original curing process is followed by fermentation.

The common practice is to bulk the leaves loose or in hands, usually in dark rooms or on open platforms. In the latter case they are covered with straw matting. The bulks are in most cases small and are weighted down to insure fermentation. In some instances the tobacco is not rebulked until fermentation is complete. Most of it is aired, however, and rebulked after each heating process.

In some districts it is a common practice for the bulks to be made of alternating layers of tobacco and dry straw. When prepared in this manner they are not disturbed until the tobacco has fermented and become dry.

CLASSES, TYPES, AND PRODUCTION BY CLASSES

There has been but limited effort by Government agencies in India to classify the country's tobacco production into standard commercial classes and types. Failure in this respect can be attributed to the recognized difficulty of classifying the tobacco and mapping production areas of individual types. Under present conditions a definite classification of all types would be of little value, since extensive commercial interest is limited to a few recognized types grown in rather limited areas. Most of the production is represented by a mixture of many types. Producing areas of different types overlap and certain types are grown in many different sections of the country. Promiscuous crossing and changes in cultural practices constantly result in new commercial types. Any classification made, therefore, would have to be continuously revised in accordance with these changes.

An additional difficulty in classification is the lack of significance of local names for different types. Very often tobacco of quite similar characteristics is known in different localities by different names. There are also a number of cases where tobacco of the same name has quite different characteristics.

Botanical Classification

The country's production can be divided between Nicotiana tabacum, which represents about two-thirds of the total, and Nicotiana rustica, which represents the remaining third. Beyond this division a botanical classification does not offer a satisfactory system for dividing the production into commercial types that would be understood outside of India. Leaf under either the Nicotiana tabacum or Nicotiana rustica species may be quite different botanically, but from a commercial point of view would be quite similar.

Detailed botanical studies of Indian tobacco were made during the years immediately preceding 1910. The types were classified in accordance with the height of plant and number of internodes; shape, size, and color of uncured leaf, and the angle of insertion of the leaves; and variation in form, color, and measurements of different parts of the flower. The studies resulted in the recognition of 51 distinct types of Nicotiana tabacum and 20 types of Nicotiana rustica (E). More recent studies of Nicotiana tabacum under a similar system of classification made in the years immediately following 1925 resulted in the recognition of 18 additional types under this species (F). Some of the newly discovered 18 types might have been missed when the first studies were made. Many of them, however, are probably new types that had developed as a result of further natural cross fertilization.

Government Marketing Office Classification

In connection with a study of tobacco marketing made by the office of the Agricultural Marketing Adviser of the Government of India, the country's tobacco production has been classified in accordance with purposes for which it is used (G). This classification and the estimated 1934-35 production under each class is shown in table 3.

Fig. 7. An experimental field of
Nicotiana rustica species,
Motihari type.

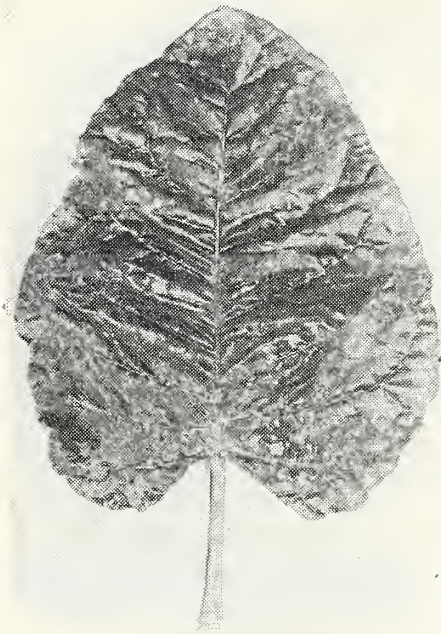


Fig. 8. Typical *Nicotiana rustica*
leaf, Motihari type.

Fig. 9. A field of
American type flue-
cured on a Baroda
Government farm.



Table 3.- Estimated 1934-35 production of tobacco in India
by curing process and use

Species and use	: Flue- : cured	: Rack- : cured	: Ground- : cured	: Pit- : cured	: Total
	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000
	: <u>pounds</u>	: <u>pounds</u>	: <u>pounds</u>	: <u>pounds</u>	: <u>pounds</u>
<u>Nicotiana tabacum</u>	:	:	:	:	:
Cigarette (Virginia) .	: 25,830	: 1,343	: --	: --	: 27,173
Cigarette (Country) ..	: 3,438	: 65,335	: 3,895	: --	: 72,668
Cigar	: --	: 5,044	: --	: --	: 5,044
Cheroot	: --	: 123,498	: 488	: --	: 123,986
Bidie	: --	: 9,467	: 124,778	: --	: 134,245
Chewing	: --	: 40,802	: 84,399	: 18,854	: 144,055
Hookah	: --	: 66,050	: 314,512	: 55,574	: 436,136
Snuff	: --	: 4,290	: 9,616	: --	: 13,906
Total	: 29,268	: 315,829	: 537,688	: 74,428	: 957,213
<u>Nicotiana rustica</u>	:	:	:	:	:
Hookah	: --	: 39,720	: 370,803	: --	: 410,523
Chewing	: --	: --	: 38,906	: --	: 38,906
Snuff	: --	: --	: 22,586	: --	: 22,586
Total	: --	: 39,720	: 432,295	: --	: 472,015
TOTAL PRODUCTION	: 29,268	: 355,549	: 969,983	: 74,428	: 1,429,228

Compiled by office of Agricultural Marketing Adviser to the Government of India.

The preceding classification does not enable the comparison of different types of Indian leaf with similar American leaf or with any other types grown outside of India. Color, shape of leaf, its taste and aroma, which are of primary importance, have not been taken into account. It is also misleading in that it segregates tobacco by use without regard to characteristics of the leaf.

Rack-cured tobacco under the designation "cigarette country tobacco" of the Nicotiana tabacum species varies in color from light brown to dark brown, the size and shape of leaf vary materially, and there is a wide difference in taste and aroma. Rack-cured tobacco of a particular type that would also come under this designation is extensively used in the production of cheroots, chewing tobacco, and other products. Similar uncertainties appear as regards the characteristics of the tobacco included under other designations.

Table 4.- Classification of Indian tobacco in accordance with species, color, and method of curing; and proportion of total 1937-38 production in each class

Group	Nicotiana tabacum		Nicotiana rustica		Per- cent- age of total
	Per-		Per-		
	cent-	Use in order	cent-	Use in order	
	age	of	age	of	
	of	importance	of	importance	
	total:		total:		
	Per-		Per-		Per
	cent:		cent:		cent
I. Flue-cured	3.2	Cigarettes, bidies, hookah	0		3.2
II. Light					
1. Rack-cured ..	0.3	Bidies, hookah, cigarettes, snuff	0.4	Hookah, snuff, cigarettes	0.7
2. Ground-cured	5.2	Bidies, hookah, chewing, snuff	0.4	Hookah, cigarettes	5.6
III. Medium light					
1. Rack-cured ..	5.0	Hookah, chewing, bidies, cigarettes, snuff, cheroots, cigars	0.3	Hookah, snuff	5.3
2. Ground-cured	4.0	Bidies, hookah, chewing, cigarettes, snuff	0.7	Hookah, snuff, chewing	4.7
3. Air-cured ...	0.2	Chewing, hookah, cheroots, cigarettes, bidies, snuff	0.1	Hookah, snuff	0.3
IV. Dark					
1. Rack-cured ..	16.0	Cheroots, hookah, chewing, cigarettes, cigars, snuff	2.5	Hookah, snuff, cheroots	18.5
2. Ground-cured	28.1	Hookah, chewing, cheroots, snuff, cigars, cigarettes	27.1	Hookah, chewing, snuff, cheroots	55.2
3. Air-cured ...	0.1	Cheroots, cigarettes, cigars, hookah, chewing	0.1	Hookah, chewing, snuff, cheroots	0.2
4. Pit-cured ...	5.2	Hookah, chewing, snuff, bidies	1.1	Hookah	6.3
Total	67.3		32.7		100.0

Classification by Species, Color, and Method of Curing

Table 4 shows a classification of Indian tobacco into seven groups that have been made in accordance with the above characteristics. It also shows in order of importance the purposes for which tobacco under each of the different classes is used. 1/ No indication is given of the taste and aroma of each type; however, some indication of mildness or strength of taste and aroma can be ascertained by the species, color, and method of curing.

Tobacco of the *Nicotiana rustica* species in general is stronger in aroma and taste than that of the *Nicotiana tabacum* species. Indian flue-cured is milder and of sweeter taste than other Indian types. The light-, air-, rack-, and ground-cured types are generally milder than the darker types. Rack- and air-cured leaf usually have a more natural and neutral taste and aroma than ground or pit-cured. Ground-cured leaf can usually be recognized by its earthy taste and pit-cured is recognizable by a taste that results from excessive fermentation.

Class I, Flue-cured

Production -- Trial plantings of American type flue-cured leaf began in India many years ago, but it was not until 1924 that intensive experiments were begun (H). Commercial production began in 1927-28 when approximately 36,000 pounds were harvested. Since that year production has expanded rapidly. By 1932-33 the outturn from 22,000 acres totaled over 8,000,000 pounds and in 1937-38 the harvested area was about 85,000 acres and production approximately 40,000,000 pounds. The rapid increases have resulted from a continuous strong demand for domestic use and in recent years an active export demand from the United Kingdom. Increased production has been obtained through larger acreages. Yields per acre have always been low in comparison with those in the United States. They are attributed to the fact that the crop in most districts is grown during the dry winter months without irrigation and with only limited quantities of fertilizer.

Producing districts -- Indian flue-cured tobacco has been grown in many localities throughout the country. Information obtained in 1938 included the following 28 points in which production has been carried out with some degree of success (see figure 11).

- | | |
|---------------------------------|------------------------------------|
| 1. Guntur, Madras Presidency | 15. Khanpur, Sind Province |
| 2. Mysore, Mysore State | 16. Sarola, Kotah State |
| 3. Mangalore, Madras Presidency | 17. Gwalior, Gwalior State |
| 4. Godavari, Madras Presidency | 18. Jhansi, United Province |
| 5. Warangal, Hyderabad State | 19. Lyallpur, Punjab |
| 6. Baramati, Bombay Presidency | 20. Jullunder, Punjab |
| 7. Miraj, Bombay Presidency | 21. Saharanpur, United Province |
| 8. Baroda, Baroda State | 22. Farukhabad, United Province |
| 9. Nadiad, Bombay Presidency | 23. Fusa, Bihar |
| 10. Indore, Indore State | 24. Dalsing Sarai, Bihar |
| 11. Bhopal, Bhopal State | 25. Sabour, Bihar |
| 12. Nagpur, Central Province | 26. Rangpur, Bengal |
| 13. Mirpur Khas, Sind Province | 27. Cooch Behar, Cooch Behar State |
| 14. Sakrand, Sind Province | 28. Sadiya, Assam |

1/ The classification in table 4 was made after extensive travel in tobacco districts of the country and after an examination of about 750 samples which presumably represented all types. The percentages of total production in classes were calculated from production figures by political subdivisions and records of types

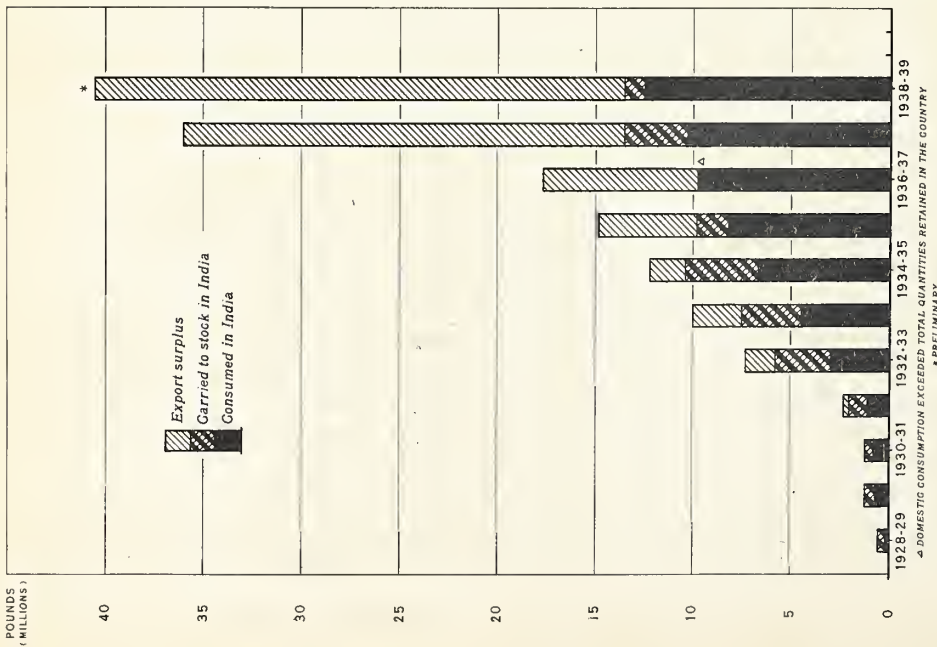


Fig. 10. Portions of flue-cured crop (reared weight) consumed in India, carried into stock, and exported.



Fig. 11. Points at which American-type flue-cured leaf was grown in 1937-38. The numbers in the map correspond to the numbers in the tabulation on page 28. The letters indicate agencies growing flue-cured leaf; g. designates Central Government experiment station; s. State experiment station; c. cooperative experiment station maintained by Central and State Governments; and p. private enterprise.

Table 5.-Estimated acreage, production, and farm price of Indian flue-cured tobacco, 1927-28 to 1938-39

Crop year (April-March)	Acreage	Production	Farm price per pound	
			Indian currency	United States currency
	Acres	1,000 pounds	Annas	Cents
1927-28	80	36	a/	--
1928-29	1,100	510	a/	--
1929-30	2,900	1,362	4.1	9.2
1930-31	3,300	1,326	3.7	8.3
1931-32	6,000	2,560	4.5	8.7
1932-33	22,000	8,160	4.6	7.5
1933-34	30,000	11,000	4.0	8.6
1934-35	34,000	13,500	4.3	10.1
1935-36	39,000	16,400	4.0	9.3
1936-37	44,000	19,500	5.4	12.6
1937-38	85,000	40,000	5.7	13.3
1938-39 <u>b/</u>	100,000	45,000	a/	--

Compiled from information from trade sources.

a/ Not available.

b/ Preliminary.

Production at most of the points mentioned on page 23 has been limited to experiments being carried out by Government agencies or limited production of a few individuals and private organizations. In 1937-38 approximately 91 percent of the crop was grown in the Guntur district. Districts next in importance were Mysore, Warangal, and Miraj. The combined production in the remaining 24 localities accounted for less than 2 percent of the total.

Indian flue-cured leaf resembles the American types 11b and 12 more than types 11a, 13, and 14. It is in general inferior to the American types, especially as regards texture, stretch, oil content, and aroma. The tobacco from most of the districts, however, has a mild neutral flavor and good burn, which make it usable in large quantities in cigarette blends. Its color is lemon to light orange but lacks some of the brightness found in American flue-cured.

Leaf from the districts of Guntur, Warangal, and from most of the points where production is negligible, has a lemon to light orange color but is somewhat inferior in texture and aroma. Leaf from Mysore, Miraj, Indore, Sharanpur, and Farukhabad is lemon to light orange in color, but in general has slightly better texture and aroma. Leaf from Mysore, Miraj, Indore, Sharanpur, and Farukhabad is lemon to light orange in color, but in general has slightly better texture and stretch than the Guntur product. That grown in the northeast, including the production at Pusa, Dalsing Sarai, Sabour, Rangpur, Gooch Behar, and Sadiya, is on the whole inferior to that from other sections of the country. In general it has

a decidedly dull light orange color, less oil, and is more papery than most Indian flue-cured. It does not burn especially well and has an earthy taste that restricts its use in cigarette blends. 1/

Producing agencies -- The Indian Leaf Tobacco Development Company, an affiliate of the British American Tobacco Company, has been the leading agency in encouraging increased flue-cured production. This organization has made extensive trials with American-type flue-cured at several places, including the present producing districts of Guntur, Mysore, Miraj, Saharanpur, and Dalsing Sarai. Relatively favorable results as regards quality of leaf were obtained in all of the above districts except Dalsing Sarai. 1/ Leaf grown by the company at Mysore, Miraj, and Saharanpur was considered slightly superior in quality. In each of these cases, however, production costs at the time trials were made were above those at Guntur, as a result of higher land values and higher wages. Additional factors that favored production in the Guntur district were large supplies of labor that was relatively easy to handle and the fact that the company had for many years purchased substantial quantities of native leaf in the district. They had established buying centers and redrying facilities which were available for handling the flue-cured leaf.

High prices for flue-cured leaf in the Guntur district in recent years have tended to increase land values, with resulting higher production costs. This, together with the frequency of short crops caused by unfavorable weather conditions, and competition in buying that has developed in recent years, has induced the Indian Leaf Tobacco Development Company to attempt the expansion of flue-cured production at other points. The company has facilities similar to those at Guntur in the Dalsing Sarai district of Bihar, and it is believed that it will expand production in that area. 2/ Production in the area can be expanded rapidly as there are a number of large estates under foreign management that formerly grew indigo and could immediately begin tobacco production on a large scale.

When production is started in a new district by the Indian Leaf Tobacco Development Company, its policy is to supervise the growing of the crop and also to insure satisfactory financial returns to growers. Seedlings are furnished to farmers by the company without cost or at a minimum price. Supervisors are established in the district to give advice regarding transplanting and cultivation. For the first year or two leaf is purchased green and cured in barns built by the company. Farmers who grow the tobacco are employed to assist in operating the barns in order that they may become acquainted with curing practices. Financial returns to farmers are assured by contracts which guarantee that the company will purchase the leaf at fixed prices. 3/ Prices assured are sufficiently high to enable the producer to secure more from the tobacco than he could by growing any of

1/ The Indian Leaf Tobacco Development Company conducted extensive experiments with flue-cured at Dalsing Sarai in 1937-38 with the hope of discovering a fertilizer application that would improve the burning quality and taste of the leaf. Results obtained with certain fertilizers gave a leaf that was decidedly superior to any previously grown in the northeast districts; however, it was still considered inferior to Indian flue-cured leaf in general.

2/ It is reported that for 1938-39 the company attempted to secure the production of about 250,000 pounds in the Dalsing Sarai district. If leaf of satisfactory quality is obtained production in the district may be expanded rapidly.

3/ Sample of contract attached hereto (Appendix IV).

the crops normally produced in the district. After production has been well established the company continues to contract for the production of a large number of farmers. The contracts are usually not registered and no effort is made to prevent farmers from selling their leaf to other agencies for prices above that mentioned in the contract. In this way the contracts act to guarantee a minimum price for production in advance of planting.

The company has made but limited direct effort to encourage expansion in the districts of Mysore, Miraj, and until recently at Dalsing Sarai. Production at Miraj in 1937-38 totaled about 50,000 pounds. It was limited to the crops of a few farmers, most of whom received training in flue-cured practices from agents of the Indian Leaf Tobacco Development Company during the time they were conducting trial plantings in the district. At Saharanpur, the production in 1937-38 was restricted to that of a single English planter who grew about 50 acres.

Production in the Mysore district has been recently increased by the Mysore Tobacco Company. This company has taken over the barns and certain other equipment formerly used by the Indian Leaf Tobacco Development Company. It is encouraging production and in time plans to install redrying equipment and perhaps a cigarette factory. The company is a semimonopoly organization. One-tenth of its stock is owned by the Mysore State Government and the rest by individuals, most of whom are Government officials. Two of the nine members of the company's board of directors represent the Government and the other seven, private individuals. The managing director who set up the organization was a Government engineer delegated to operate the company.

Farmers who grow tobacco for the Mysore Tobacco Company and the land on which leaf is to be grown are selected by the company's agents. 1/ A contract is entered into with farmers whereby the company agrees to purchase green leaf in the field at prices which vary in accordance with quality. The 1937 prices, guaranteed for specified qualities, ranged from 0.4 to 1.5 cents per pound, uncured weight. The average price was about 0.8 cent per pound. Seedlings are furnished by the company at a minimum charge of about \$2.75 for 5,000 (the quantity needed to set 1 acre). Spray material and fertilizer are also furnished to the growers at cost, but charges for them as well as those for seedlings are deducted from payments due the grower for his green leaf. The setting of fields by farmers and cultivation of plants must be done under the supervision of an agent of the company. Harvesting until 1938 was done by laborers employed by the company. 2/ The leaf is cured in the company's barns and at its expense. There were five producing districts in Mysore State in 1937 and the production totaled about 1,000,000 pounds. The company nearly doubled the acreage in 1938 but adverse weather conditions resulted in low yields. The crop has been tentatively estimated at 1,500,000 pounds.

Agencies other than the Indian Leaf Tobacco Development Company and the Mysore Tobacco Company that are interested in increasing the production of flue-cured leaf in India include Federal and State Government organizations, small

1/ Land titles in Mysore State do not give absolute ownership and the Government, if it desires, can by various means force farmers to grow a desired crop. This fact places the company in a favorable position as regards the selection of suitable land and farmers for the production of leaf.

2/ Beginning with 1938 farmers have been required to harvest and deliver the green leaf to the company's curing barns.

cigarette companies, farming corporations, and private individuals. Production at Warangal, which in 1937-38 totaled nearly 1,000,000 pounds, is being encouraged by the Hyderabad State Government. Expansion in the district has been possible largely because there has been a ready market in the nearby Guntur district. Other Indian States that are encouraging production include Baroda, Indore, Bhopal, Kotah, Gwalior, and Cooch Behar. The efforts of these States are largely limited to demonstrations in flue-cured production on experimental farms and other indirect methods. In some cases, however, the State is making a direct effort by insuring farmers a market for their crop through agreements entered into with cigarette factories.

Production at Baramati, Mangalore, and Godavari is limited to that of a few large landowners who in 1937-38 grew small acreages. Production at Nadiad is confined to that of the Bombay Presidency Experimental Station and a few farmers who are growing leaf for small cigarette factories in Bombay. At Nagpur, production is limited to the Government Experimental Farm. At Mirpur Khas, trial plantings are being made by the Sind Land Developing Company, an organization that during recent years has grown large acreages of cotton. Production at Sakrand is limited to a Government Experiment Farm, and at Khanpur to that of a few farmers who produce for a small cigarette factory at Sukkur. In addition to the experiments of the State Government at Gwalior a small cigarette manufacturing firm is growing about 40 acres for its own use. At Jhansi, production is limited to that of two individuals who in 1937-38 grew a total of about 60 acres. At Lyallpur and Jullunder, production is confined largely to that of experimental farms and a few independent farmers. The director of the Jullunder Experimental Station is encouraging production in the district by insuring the sale of the leaf to a small cigarette factory in the town of Jullunder. At Farukhabad, Pusa, Sabour, and Rangpur, production is being tried on experimental farms and by a few farmers. Production at Sadiya is limited to that of a single individual who in 1937-38 made trial plantings of flue-cured.

Production costs -- The cost of producing and marketing flue-cured tobacco in India during 1937-38 averaged only about 8.6 cents per pound, which was reported to be somewhat above the average cost for previous years. The low cost is explained by cheap labor. Land rents and cost of materials compare with those in the United States. In the Guntur district average unirrigated tobacco land in 1937 sold for about \$150 per acre, but wages paid to farm laborers average only about 12 cents per day for men, and 8 cents per day for women. An average of about 230 man workdays are required to produce 1 acre of flue-cured tobacco, which makes the total man labor charges about \$27.60.

Animal labor is largely limited to the preparation of the land, hauling tobacco from fields, and hauling to market. Cattle are used for this purpose. They are abundant and cheap, which results in charges for animal labor being low.

The following tabulations show approximate 1937-38 costs of growing and marketing 1 acre of flue-cured leaf in the districts of Guntur, Mysore, and Saharanpur, the approximate yield per acre in these districts, and calculated returns on the basis of the average price for all India in 1937-38.

Average production and marketing costs and returns to farmers from 1 acre of flue-cured tobacco in the Guntur district in the 1937-38 season a/

	Rupees Annas		United States dollars
<u>Production cost</u>			
Land rent.....	16	- 12	6.26
Plowing and harrowing.....	7	- 4	2.71
Marking for setting.....	1	- 4	.47
Cost of manure, including application.....	2	- 8	.94
Cost of seedlings.....	8	- 8	3.18
Transplanting.....	3	- 8	1.31
Cultivating, weeding, suckering, and worming.....	13	- 12	5.14
Harvesting.....	6	- 0	2.24
Total production cost.....	59	- 8	22.25
<u>Curing cost</u>			
Depreciation on barn.....	6	- 4	2.34
Coal.....	14	- 0	5.23
Sticks, strings, and other material.....	3	- 4	1.22
Labor for loading and unloading barn and piling leaf in ordering bulks.....	17	- 0	6.36
Total curing cost.....	40	- 8	15.15
<u>Marketing cost</u>	6	- 0	2.24
Total costs.....	106	- 0	39.64
<u>Returns</u>			
Average yield per acre of 460 pounds at 5.7 Annas (13.3 United States cents) per pound.....	163	- 14	61.29
<u>Net profit</u>	57	- 14	21.65

a/ Based on field inquiry made in the Guntur district in February 1938.

Approximate production and marketing cost, and return per acre from flue-cured tobacco to a large planter at Sharanpur in 1937 a/

	Rupees Annas		United States dollars
<u>Costs</u>			
Cost of growing seedlings for 1 acre.....	10	- 0	3.74
Land rent.....	15	- 0	5.61
Commercial fertilizer.....	30	- 0	11.22
Irrigation (water only).....	3	- 0	1.12
Labor.....	80	- 0	29.92
Coal for curing.....	8	- 0	2.99
Supervision and depreciation on buildings and other overhead.....	10	- 0	3.74
Total costs.....	156	- 0	58.34
<u>Returns</u>			
Average yield per acre of 850 pounds at 5.7 Annas (13.3 United States cents) per pound....	302	- 13	113.25
<u>Net profit</u>	146	- 13	54.91

a/ Reported by planter in February 1937.

Average costs and returns from an acre of flue-cured tobacco to the Mysore Tobacco Company in 1937 a/

	<u>Rupees Annas</u>		<u>United States dollars</u>
<u>Cost</u>			
Purchase 1 acre green tobacco 2,527 pounds from farmers at average price of 4 pies per pound...	52	- 10	19.68
Picking	6	- 0	2.24
Loading and unloading barns	15	- 0	5.61
Curing costs	22	- 8	8.42
Field supervisors and miscellaneous labor	13	- 8	5.05
Overhead, salaries of central organization, depreciative equipment, etc.	14	- 4	5.33
Total costs	123	- 14	46.33
<u>Returns</u>			
Average yield per acre 455 pounds cured leaf at 5.7 Annas (13.3 United States cents per pound) .	162	- 2	60.63
<u>Net profit</u>	38	- 4	14.30

a/ Reported by manager of Mysore Tobacco Company in February 1937.

The production cost per pound, as indicated by the above calculations, averages about 8.6 cents for farmers in the Guntur district, but 6.9 cents for the single large planter at Saharanpur, and 10.2 cents, the cost to the Mysore Tobacco Company. Higher costs in the Mysore district are largely explained by the added expense for supervision and that of maintaining an overhead organization. Expenses per pound for both of these items would be lower with larger production. Costs per pound for the planter at Saharanpur are low as a result of the high yield per acre that was accomplished through the use of irrigation, and 450 pounds of commercial fertilizer per acre. The calculated net returns in all cases are high due to the 1937-38 price being substantially above average. The indicated net profit in the Guntur district was over 50 percent, for the planter at Saharanpur about 95 percent, and that of the Mysore Tobacco Company over 30 percent.

Necessity for American seed -- Tobacco originating from American flue-cured seed when reproduced under farm conditions over a period of years in India generally loses its similarity to the American type. Much of the similarity is lost in the first generation and is believed to result from the plant being grown under soil and climatic conditions that differ from those in America. Changes from year to year in succeeding generations are not as pronounced, but over a period of 5 to 6 years fields have plants of varying characteristics, many of the plants being decidedly different from the American type or even first-generation plants. As a result of these changes, commercial agencies interested in the production of the leaf have adopted a policy of continually introducing new seed from the United States. It is the general practice for them to furnish growers seed produced by plants grown from seed brought directly from America. Most of them are of the opinion that this is essential to the maintenance of type and quality of Indian flue-cured.

Best informed plant breeders hold somewhat different views than the Indian commercial agencies. They are of the opinion that if plants from American seed are prevented from crossing with local types the form and commercial qualities of the leaf will not deteriorate with continuous reproduction. Experiments with

self-fertilized plants conducted by Albert and Gabrielle L. C. Howard at the Pusa Experiment Station enabled the investigators to conclude that, after 4 years, types of tobacco at Pusa started by seed from Burma and distant parts of India were not changed in type even to fine shades of color and small differences in the morphology of the leaves and flowers and in the earliness and general habits of the plant. On the other hand when the types were allowed to flower and seed freely at Pusa the uniformity of the type was soon lost. The experiments also showed that excessive amounts of nitrogenous manure and over-watering had marked effect on the vigor and coarseness of the plant concerned, but this rankness was not found to be transmitted in any degree to the succeeding crop when grown under more normal conditions (E).

It is probable that most of the progressive degeneration in type that occurs under farm conditions results from cross fertilization with Indian native types. Part of it might also be explained by chance selection. Some of the plants grown directly from American seed do not mature as rapidly and completely as others and are probably not used for seed plants. Further chance selection might take place in seedbeds. Certain strains may not develop seedlings as rapidly as others and might not be used for seed plants. Investigations into these matters and other causes of degeneration in type would probably prove that continual introduction of American seed is not essential. Under existing conditions, however, restocking with the seed is probably the most satisfactory and economical method of maintaining type.

Class IIa, light (*Nicotiana tabacum*)

Light Indian tobacco of the *Nicotiana tabacum* species includes about 10 separate types. The bulk of production in this class, which in recent years has totaled over 65,000,000 pounds, is in Bombay Presidency. Most of the production is ground-cured.

The types vary from mottled orange thick leaf to thin leaf light brown. Most of them have a fair aroma but low oil content and papery texture. They are used primarily for bidies but small quantities go into hookah tobacco, chewing tobacco, cigarettes, and snuff.

American-type burley grown in India is included in the light *Nicotiana tabacum* group. It is somewhat inferior to American burley, has a thin leaf, lacks aroma, and is papery in texture. Most of it is primed and is rack-cured. It does not vary materially in color from the American product.

The country's production of burley has never reached 1,500,000 pounds, and is grown only on order for export to the United Kingdom, where it is used as a substitute for American burley in pipe mixtures. It is produced in the Guntur district by farmers under contract to the Indian Leaf Tobacco Development Company. 1/

1/ Contracts with burley growers are similar to the flue-cured contract (Appendix III).

Table 6.- Estimated acreage, production, and price of American-type burley tobacco in India 1929-30 to 1937-38

Crop year (April-March)	Acreage	Production	Price per pound	
			Indian currency	United States currency
	Acres	1,000 pounds	Annas	Cents
1929-30.....	1,700	950	2.30	5.18
1930-31.....	1,250	690	2.10	4.73
1931-32.....	800	450	2.65	5.15
1932-33.....	2,600	1,400	2.60	4.26
1933-34.....	0	0	--	--
1934-35.....	2,000	1,100	2.45	5.74
1935-36.....	1,250	700	2.30	5.35
1936-37.....	0	0	--	--
1937-38.....	1,000	550	a/	a/

Compiled from information from trade sources.

a/ Not available.

Class IIb, Light (Nicotiana rustica)

Production in this group is limited to what has been considered as only two types of the Nicotiana rustica species grown in the extreme northwest. The annual production of these two types, most of which is Peshawar leaf, during recent years has been about 9,000,000 pounds. The Peshawar type has a small, moderately thick, leathery leaf that cures out to a dull orange color. It is either rack- or ground-cured. It is used primarily in hookah tobacco, but some is used in snuff and cigarettes. Its use in cigarettes, however, has not proved satisfactory and will probably be discontinued.

The other type is darker in color than Peshawar and has a larger but thinner leaf and papery texture. Most of it is ground-cured and is used for hookah tobacco.

Class IIIa, Medium Light (Nicotiana tabacum)

Indian medium light tobacco of the Nicotiana tabacum species includes some 15 separate types, for which the producing districts are scattered throughout the country. The combined production of all types in the group in recent years has averaged about 100,000,000 pounds. The tobacco is usually rack-, ground-, or air-cured. Pit-curing is limited to portions of two types.

The types vary in color from light brown to light reddish brown and light greenish brown. In general they have a fair aroma, moderately thick leaf, low oil content, and papery texture. They are used for all purposes but the quantity used in bidies, hookah, and chewing tobacco exceeds that used in other products.

Three types in the group, Desi and Pusa type 28 of the Dalsing Sarai district and Desi of the Guntur district, are extensively used in cigarettes. 1/

1/ The term Desi designates local or native tobacco.

Substantial quantities of the Guntur Desi are also exported to the United Kingdom, and were prior to 1938 to Japan. 1/ It is used in the United Kingdom in pipe mixtures and in Japan in cigarette blends.

Class IIIB, Medium Light (Nicotiana rustica)

Indian tobacco in this group has been classified in six types, of which only two are extensively cultivated. The types are grown in the northern and northeastern districts and production in recent years has been about 13,000,000 pounds annually. All of the types are ground-cured and vary in color from light brown to light greenish brown. They are all generally inferior in quality and have a woody texture. They are used almost exclusively for hookah tobacco.

Class IVA, Dark (Nicotiana tabacum)

Tobacco of this group includes a large number of types for which the producing districts are found in all parts of the country. Total production in recent years has represented nearly half of the country's output or some 550,000,000 pounds annually. Different types in the group are cured by all methods practiced in the country with the exception of flue-curing. They vary in color from shades of dark brown to dark greenish brown and in quality from thin-leaf types with high oil content and good aroma to those with coarse leaves, low oil content, poor texture, and poor aroma. Leaf of the group as a whole is used for all purposes, but use in hookah tobacco, cheroots, and chewing tobacco exceeds that for other purposes.

Small quantities of one of the types grown in the Guntur district are exported to the United Kingdom for use in shag and pipe mixtures. Substantial quantities of certain types are also exported to Burma and other nearby points where they are used in manufacturing cheroots and other products.

The class includes the well-known cigar types of Sumatra, Manila, Havana, Connecticut Broad Leaf, and Pennsylvania, but their production has been insignificant and in recent years largely confined to that on experimental fields. A foreign-managed leaf tobacco company (Andrew Yule and Company) began the production of these types on a fairly large scale in the northeast section of the country in 1930. It was soon found, however, that the domestic and export demand for them at the price required to cover cost of growing was limited, and production was discontinued in 1933.

Quality of the cigar types, except for cleanliness, blemishes, and aroma, compares somewhat favorably with low quality of the types produced in their native places.

Class IVb, Dark (Nicotiana rustica)

Production under this group has been classified into four types that are grown in the north and northeastern districts of the country. With the exception of one type, they are extensively cultivated and as a group represent approximately

1/ As a result of financial stringencies resulting from the conflict with China, Japan prohibited from February 1938 the import of leaf from all sources other than occupied areas in China.

30 percent of the country's total or about 350,000,000 pounds annually. Most of the types are either ground- or pit-cured. Part of the Motihari type is rack- or air-cured. The color of all of the types is dark greenish brown. The leaves are thick and woody with practically no oil and stretch. It is used primarily for hookah tobacco, and small quantities are used in snuff, in cheroots, and for chewing.

GRADING AND MARKETING

There is little uniformity in practices followed in the grading and marketing of Indian tobacco. A large part of the production is never graded and where grading is done it is usually accomplished by dealers. Grading by farmers is limited to less than 10 percent of production. There is also little uniformity in grade standards and for all types the number of grades are limited, usually numbering from 2 to 5.

Marketing practices vary from old methods established many years ago to practices somewhat similar to those now followed in the United States. There are no auction floors, but at some marketing centers individual buying concerns inspect and handle tobacco somewhat as is done on markets in the United States.

Grading

Native Types

A small portion of native tobacco is both grown and prepared for retail trade by the farmer. Some such farmers grade the leaf and prepare native retail products of different qualities. In most cases, however, where the grower is also a retailer he has only a single product of uniform quality, using his entire production in its preparation irrespective of grade.

Nearly 95 percent of the country's marketings of native types in surplus producing districts is sold without being graded. A substantial part is only partially cured when sold and the curing process is completed by the dealer. Grading as done by dealers usually consists of sorting the leaf into 2 or 3 grades in accordance with size, color, cleanliness, and in some cases texture. There is little uniformity in grades as between different small dealers and if the tobacco is resold to a larger dealer or an exporter it is usually regraded to fit the new purchaser's standards. The same lot of tobacco may be graded 3 or 4 times before it reaches the manufacturer of the product in which it is used.

Flue-cured

In the case of flue-cured leaf, only about 10 to 20 percent of the production during the past few seasons has been graded by farmers. The remaining portion has been sold in bulk and graded by dealers. For this type there is more uniformity in grade standards of different dealers than for any other Indian leaf. A large part of the crop is sorted by dealers into five grades that have become recognized as standard. This standardization and grading by farmers is largely due to efforts of the Indian Leaf Tobacco Development Company. Since the beginning of commercial production of flue-cured in India this company has contracted with some of the growers for their flue-cured leaf at prices varying in accordance

with grade. The contracts specify the quality requirements for different grades and prices that will be paid for each, and the company's officials have given farmers and local agricultural leaders instructions in grading.

Government Standard Grades

In 1937 the Central Government, with a view to improving the standard of Indian agricultural products and particularly those for export, put into effect an act providing for standard grades and markings, for a list of agricultural products, including tobacco (I). Pursuant to this act, standard grades were established in 1937 for American-type flue-cured leaf, American flue-cured type that is sun-cured, and Indian native tobacco of the Nicotiana tabacum species that is sun-cured. 1/ The standards were changed slightly in 1938. The most important change was the combining of certain grades in the flue-cured group, which resulted in a reduction in the number of grades from 7 to 5. 2/

The act and subsequent regulations pertaining to tobacco do not compel the use of Government standards. They merely fix the official markings, set up grade standards, and give specifications for size and covering of packs, which if conformed to entitle a merchant to use official markings. Individuals or organizations interested in packing their tobacco in accordance with official standards apply for permission to use the official markings. Upon receipt of application at the Government Marketing Office an investigation is made of the applicant's standing and reliability. If Government authorities are satisfied that the person or organization is reliable and qualified to grade and pack in accordance with Government standards, a certificate is issued for a definite period of time that permits the use of official markings for a designated type of tobacco at the specified premises. The certificate further provides that Government marketing officers shall at all times have access to the premises where the tobacco is being packed and shall be permitted to satisfy themselves that the products or packing conform to Government standards. If a quantity of tobacco has not been graded or packed in accordance with Government standards the Government's agent has the authority to remove the grade marks from the packings. An authorized agent of the Government can also revoke, modify, or suspend the certificate of a holder when it is found that he is not qualified to meet Government standards.

The extent to which Government standards and markings for tobacco have been used is as yet limited. Much of the flue-cured leaf, however, is graded and packed in a manner that would permit the use of Government markings, and it is probable that in time a substantial part of the crop, especially that for export, will be sold under Government standards.

Marketing

Native Types

In many districts of India, native tobacco is grown only for consumption in the community where it is produced. In such cases farmers sell their leaf to small local dealers or tobacconists, or in some cases convert it into tobacco products for local sale.

1/ Sun-cured tobacco under these rules would include rack- and ground-cured leaf.

2/ Appendix IV. shows 1938 grade standards.

In the surplus producing districts a part of the crop is sold as explained above. Most of it, however, is purchased by small dealers or brokers of larger firms either at the farm, the local market, or at established buying points where only tobacco is handled. The only exception to this practice is for a portion of certain types purchased for the use of large cigarette manufacturers. There are no open markets or auction floors to which the farmer may take his leaf. In most villages in the important producing districts, however, there are agents from several tobacco houses and the grower can take his leaf from one to the other of them and sell where he can secure accurate weighing and highest price.

In many districts it is quite common for buyers' agents to purchase native tobacco at the farm. This is especially true in cases where the leaf grown on a particular farm has recognized qualities that make it in demand for specific purposes. 1/ Some farm purchases are made when the tobacco is still in the field and it is harvested and cured by the buyer.

The condition of cured leaf as sold by farmers and its pack vary widely. Some is sold when only partially cured. In some cases the leaf has not been removed from the stalk at the time it is sold. In other cases a portion of the stalk may be left on the leaf, and for some types it is quite common for the leaf to be broken into small pieces or even reduced to dust. The latter is especially true for tobacco destined for use in bidies or hookah tobacco (see figure 12). Packs of leaf as sold by farmers include loose leaf bales, bundles of hands, and gunny bags of broken leaf or dust.

Units of weights used by village buyers vary materially. The standard weight generally accepted in the country is the railroad, or Bengal maund, weighing 82.3 United States pounds and divided into units of 40 seers. There is a wide variation, however, in the weight of the maund from one section of the country to another and often between different dealers in the same community. In addition, there are other local units of weight such as the candy, a weight of about 500 pounds; the kachcha, usually equal to about half of a local maund; the gandas which is supposedly equivalent to the weight of four pice (Indian copper coin); and the paseri which is supposedly equivalent to five local seers. An added complication is the fact that buyers' scales are often adjusted to register short weights. The farmer, who in most cases is uneducated, seldom has little conception of what his tobacco actually brings for a given unit of weight. The deciding factor in his selling a quantity of leaf is the highest total amount offered.

The process of arriving at a price per unit of weight, or the total amount paid for a lot of tobacco, is usually the subject of much negotiation. In some communities trading is carried on in the open so that bystanders can know of the transaction. In many places, however, it is done behind closed doors and in some localities it is not uncommon for trades to be concluded by the buyer and seller signalling with their fingers concealed under a cloth (see figure 13).

1/ Tobacco that has been irrigated by wells from which the water has a high content of saltpetre and other chemicals has a decided taste that is sometimes demanded by an established trade. Tobacco grown on certain patches of soil of special properties is also often demanded by a particular group of consumers.

Fig. 12. Forcing tobacco through sieves prior to sale for use in bidies.

(Courtesy of the Agricultural Marketing Office of the Government of India.)

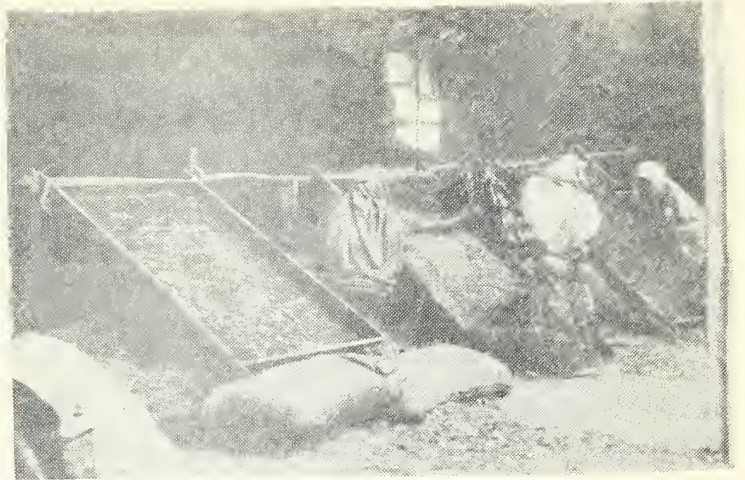


Fig. 13. A farmer and dealer negotiating a sale of leaf by signalling with their hands concealed under a cloth.

(Courtesy of the Agricultural Marketing Office of the Government of India.)

Fig. 14. Stemming flue-cured leaf at a small dealer's warehouse in the Guntur district.

(Courtesy of the Agricultural Marketing Office of the Government of India.)



Numerous practices and services that are associated with the sale of tobacco add to the complication of marketing. There are weighing fees, charges for the making of account slips, charity payments, marketing dues, cartage and carrying charges, the brokers' commission, and other items of expense that have to be taken into account. These incidental charges vary materially from season to season and from one village to another. They are not definitely fixed, but are subject to negotiation and payable by either seller or buyer.

Tobacco merchants or firms usually have agreements with their brokers to take specified qualities of leaf from them at fixed prices and in addition give a commission represented by a percentage of total value of leaf purchased. Commission rates vary from one locality to another and often as between individuals employed by a single firm. Firms usually have no restrictions as regards practices followed by their brokers. If a broker is able by docking weights or other means to obtain leaf below the fixed price of his firm the benefit is his.

In the surplus native-tobacco districts a firm's purchases, as made by its brokers, are collected at a central village or town. It is then graded, and, in the case of partially cured leaf, curing is completed. It may then be sold to a still larger local dealer or exporter. If not, it is packed in bales, of which in general there is little uniformity as to size and material used in packing, and shipped to consuming centers in the country or exported. Buyers in consuming centers are usually merchants who handle leaf tobacco along with other commodities or tobaccoists who convert the leaf into products for local consumption. If it is bought by a merchant it is often regraded for sale to local tobaccoists.

There is no sales tax or any other tax imposed by the Central Government on leaf tobacco. In some localities, however, there are local sales taxes and other dues collected from the sale of tobacco. In addition, numerous cities and towns and some independent Indian States levy taxes on tobacco entering them for consumption. Such taxes are usually on a weight basis regardless of the quality or value of the product. They vary in amount from about 1 cent to 30 cents per hundred pounds, but average only a few cents per hundred.

Native tobacco for export is usually purchased from dealers by export houses, which in many cases handle tobacco along with a number of other commodities. The leaf is regraded to conform to the firm's standards and packed in uniform bales, which are usually covered by straw matting or burlap. In some cases the leaf is exported direct to a company's agents abroad who negotiate sales following its arrival. It is also sold direct to foreign firms on the basis of samples furnished, or sold to foreign companies after an agent of the purchasing company has inspected the tobacco prior to packing for shipment.

The large cigarette companies of the country or their agents purchase native tobacco direct from farmers at established market centers. Practices used are somewhat similar to those followed in the purchase of flue-cured leaf by the Indian Leaf Tobacco Development Company, as described in the following paragraphs.

The following tabulation shows average prices paid per pound during recent years for two native types of tobacco used in cigarettes.

Crop year (April-March)	Desi (Guntur) Price per pound		Desi (Dalsing Sarai) Price per pound	
	<u>Annas</u>	<u>United States cents</u>	<u>Annas</u>	<u>United States cents</u>
1929-30	1.90	4.28	a/	--
1930-31	1.85	4.16	a/	--
1931-32	2.00	3.89	a/	--
1932-33	1.90	3.11	a/	--
1933-34	1.40	3.03	1.60	3.46
1934-35	1.90	4.45	1.70	3.98
1935-36	1.60	3.72	a/	--
1936-37	1.60	3.73	1.70	3.96

a/ Not available.

Flue-cured

When the commercial production of flue-cured leaf began in India most of it was grown by farmers under contract with the Indian Leaf Tobacco Development Company. A portion was cured by farmers and a part was purchased green by the company and cured in its barns. These practices have continued to a limited extent in the principal producing district of Guntur.

In the Mysore district the entire output is purchased in the field from farmers and cured by the Mysore Tobacco Company. The bulk of the country's total production, however, is now purchased after it has been cured by farmers.

The Indian Leaf Tobacco Development Company is the largest buyer of the flue-cured crop. It has established buying places at five points in the Guntur district. Tobacco is hauled by farmers to these points in bales of loose leaf weighing about 175 pounds each. The bales are arranged in rows similar to baskets on auction floors in the United States. ^{1/} A ticket is placed on each bale and they are opened for inspection by the company's buyer who offers a price in Annas per pound, in accordance with the quality of the leaf. Only a small percentage of the crop is graded by the farmers (about 10 percent in the 1937-38 season) in a manner that enables purchases by grades at the company's established prices. The tobacco in bulk is priced in accordance with what the company's agent thinks it will grade out. If the farmer is not satisfied with the price entered on his ticket he can remove his leaf and attempt to secure a better offer from other buyers in the town. If the price is accepted the tobacco is immediately weighed, and, if the farmer is satisfied with the weight, the sale is concluded. A copy of the ticket on his bale is given to him with which he can secure payment from the company's cashier located at the buying point.

Tobacco purchased by the Indian Leaf Tobacco Development Company is now graded into nine grades and most of it stripped. It is then redried in a nearby plant of the company and packed in hogsheads of 800 to 1,000 pounds. It is stored locally or shipped to cigarette factories in India or to factories in the United Kingdom that are affiliates of the company.

^{1/} At most of the five buying points there is no marketing floor, the tobacco merely being displayed in an open compound. This is possible since it seldom rains during the flue-cured buying season.

As a result of high temperature and humidity during part of the year, and an excessive number of weevil and insects, storage conditions in India are very unsatisfactory. As a consequence, the better grades of flue-cured leaf purchased by the above company are stored in cold storage warehouses. For insect and weevil control the low grades are put through redrying machines at regular intervals. Fumigation is not used because, as a result of climatic conditions, the tobacco is stored in warehouses that have wide ventilation spaces under the eaves and at the ground that cannot be closed for fumigation.

Table 7.- Estimated price per pound by grades for Indian flue-cured leaf and approximate percentage of crop in grades, 1932-33 to 1937-38

Crop year (April-March)	GRADE I			GRADE II			GRADE III		
	Price	Per-		Price	Per-		Price	Per-	
	per pound	centage		per pound	centage		per pound	centage	
		of crop			of crop			of crop	
	Annas	United	Percent	Annas	United	Percent	Annas	United	Percent
	States			States			States		
	cents			cents			cents		
1932-33....	7.5	12.3	23.1	4.8	7.9	46.7	2.5	4.1	21.7
1933-34....	7.3	15.8	10.7	4.8	10.4	54.3	1.9	4.1	28.9
1934-35....	7.6	17.8	21.3	4.3	10.0	53.2	2.2	5.1	13.9
1935-36....	8.6	20.0	8.1	5.1	11.8	31.7	4.5	10.4	30.0
1936-37....	6.7	15.6	47.9	5.4	12.6	23.3	3.9	9.1	22.3
1937-38....	9.3	21.7	28.7	5.3	12.4	38.7	4.5	10.5	17.8
	GRADE IV			GRADE V			WEIGHTED		
							AVERAGE ALL GRADES		
1932-33....	1.1	1.8	5.7	.8	1.3	2.8	4.6	7.5	100.0
1933-34....	1.0	2.2	3.1	.8	1.7	3.0	4.0	8.6	100.0
1934-35....	1.0	2.3	11.5	.9	2.1	0.1	4.3	10.1	100.0
1935-36....	1.7	4.0	10.3	1.0	2.3	19.9	4.0	9.3	100.0
1936-37....	1.9	4.4	2.8	1.1	2.6	3.7	5.4	12.6	100.0
1937-38....	2.1	4.9	1.3	1.2	2.8	13.5	5.7	13.3	100.0

Compiled from information obtained from trade sources.

Some of the small firms purchasing flue-cured tobacco have established buying points that are operated as are those of the Indian Leaf Tobacco Development Company. Most of their purchases, however, are made through brokers. The brokers travel through the country and buy tobacco at farms. 1/ It is not uncommon for them to purchase the leaf as a lot (not in price per unit of weight) while it is still in the curing barn. In limited cases it is purchased in the field, and picked and cured at the brokers' expense. Most firms offer their brokers fixed prices for tobacco of specified quality and if they can obtain it for less the difference is to the benefit of the broker. In addition they receive a commission of one percent of the value of all purchases. In some cases they are also authorized to pay an amount for charity. 2/

1/ It is estimated that between 20 and 30 percent of the 1937-38 flue-cured crop was purchased at farms.

2/ Charity payments are payments equivalent to a small percentage of gross sale value and are made to charitable organizations in the community.

Table 8.- Approximate average costs to Indian merchants for delivering 100 pounds of flue-cured strips to United Kingdom manufacturers from the crops of 1934-35 to 1937-38 a/

Item	1934-35	1935-36	1936-37	1937-38
	United States	United States	United States	United States
	dollars	dollars	dollars	dollars
<u>Charges for converting 100 pounds of leaf into redried strips</u>				
Season's average farm price for 100 pounds of leaf	10.10	9.30	12.60	13.30
Brokerage to buyer (1 percent of farm price) ...	.10	.09	.13	.13
Cartage from farm to merchants' warehouse .....	.04	.04	.04	.04
Grading charge per 100 pounds, farm weight .....	.30	.30	.30	.30
Stemming charge per 100 pounds farm weight leaf ..	.37	.37	.37	.37
Redrying and packing charges for 75.8 pounds ...	.90	.90	.90	.90
Value 71.3 pounds redried strips b/	11.81	11.00	14.34	15.04
<u>Packing and delivery charges to United Kingdom for 100 pounds redried strips</u>				
Value 100 pounds redried strips	16.56	15.43	20.11	21.09
Cost of packing material - Hogsheads .....	.44	.44	.44	.44
Bales c/	(.11)	(.11)	(.11)	(.11)
Delivery to port (Cocanada) - By rail .....	.33	.33	.33	.33
By canal c/	(.06)	(.06)	(.06)	(.06)
Forwarding charges at Cocanada, including loading on vessel, billing, etc. ....	.06	.06	.06	.06
Ocean freight .....	.91	.93	1.04	.96
Landing and storage charges in United Kingdom ..	1.04	1.04	1.04	1.04
Insurance in transit (seven-eighths of one percent of c.i.f. value less duty, commissions, and profit up to 1936-37; three-fourths of one percent from 1937-38) .....	.17	.16	.20	.18
Overhead of Indian merchant - cables, samples, interest, salaries, charity, etc. ....	.75	.75	.75	.75
Brokerage to United Kingdom agent, 5 percent of sale value not including duty	1.26	1.19	1.49	1.54
Profit to Indian merchant not including value of stems d/	3.68	3.37	4.24	4.46
Estimated price to United Kingdom manufacturers less duty	25.20	23.70	29.70	30.85

Calculated from data secured from merchants in the Guntur district

a/ Does not take into account the cost of the Indian Leaf Tobacco Development Company, which as a result of large volume handled would be somewhat below the cost of independent merchants.

b/ Waste 4 percent of farm weight (dirt, spoiled leaves, etc., removed in grading process); stemming loss 21 percent of cleaned leaf, i.e., 21 percent of 96.0 pounds; redrying loss 6 percent of cleaned strips, i.e., 6 percent of 75.8 pounds.

c/ Not included in total.

d/ Profit not including value of stems was 14.6 percent for 1934-35, 14.2 percent for 1935-36, 14.3 percent for 1936-37, and 14.5 percent for 1937-38.

Cured leaf bought by a broker is carted to the firm's warehouse at the firm's expense. It is then graded and most of it stripped. Aside from the Indian Leaf Tobacco Development Company there are only two or three firms that have redrying plants. Most of the small firms have their leaf redried and packed in hogsheads at the plants of the larger firms. If it is not redried the leaf or strips, is usually sun-dried for about 30 minutes to 1 hour and then packed in burlap bales that weigh about 250 pounds.

The processes of stripping and baling, and much of the other handling of leaf, are done by hand (see figure 14). It is estimated that in 1937-38 approximately 40,000 people were employed (for a period of about 3.5 months) in buying, grading, stripping, redrying, packing, and shipping the 40,000,000-pound flue-cured crop. The average wage for native men engaged in this work was about 14 cents per day and for women about 9 cents per day.

Most of the flue-cured leaf purchased by small dealers and a large part of that bought by the Indian Leaf Development Company is exported to the United Kingdom. For the 3 fiscal years 1935-36 to 1937-38 about 95 percent of such exports have been strips, and it is estimated that over 80 percent of all flue-cure exports are redried.

Indian flue-cured leaf sent to the United Kingdom by the Indian Leaf Tobacco Development Company is consigned direct to cigarette manufacturing firms affiliated with the company. It is there held in bond until withdrawn for use. Leaf shipped to this market by the smaller dealers is in most cases consigned to a commission firm and held in bond until it is sold by the firm. All expenses of transportation, landing charges with the exception of duty, warehousing, insurance, brokerage, etc., are borne by the Indian dealer.

IMPORTS AND EXPORTS 1/

It is believed that India became a surplus tobacco producing area relatively soon after the plant was introduced into the country. Since 1874-75 when official records of the sea-borne trade of the country became available, exports of tobacco in all forms by sea from India, including Burma, have ranged from 6,500,000 to over 44,000,000 pounds annually, whereas imports have ranged only from 1,000,000 to 12,000,000 pounds. 2/

1/ See tables pages 67 and 68 for details of exports and imports by sea of leaf and tobacco products by sources and destinations.

2/ Burma was considered a part of India until April 1937, and figures given for imports and exports prior to 1937-38 include Burma. Exports from Burma of leaf tobacco, cigars, and other tobacco products exclusive of cigarettes have represented a substantial part of total exports from the area. Cigarette exports from Burma have been negligible. Imports into Burma (from sources other than India) of leaf tobacco and all products other than cigarettes have been relatively unimportant. Intershipments of leaf and all products between Burma and India have been important. Considerable quantities of leaf tobacco have moved in both directions. Cigarette shipments from India to Burma have been large, but movement in the other direction has been negligible. Cigar shipments from Burma to India have been relatively large, whereas there have been only small shipments from India to Burma. For products other than cigarettes and cigars the shipments from India to Burma have been relatively large, but movement from Burma to India has been unimportant.

Table 9.- Exports and imports by sea of leaf tobacco and tobacco products
and excess of total exports over total imports for India,
including Burma, 1910-11 to 1937-38 ^{a/}

Fiscal year	Exports					Imports					Excess
(April-March)	Leaf to- bacco	Cigars rettes	Ciga- rettes	Other prod- ucts	Total	Leaf to- bacco	Cigars rettes	Ciga- rettes	Other prod- ucts	Total	of exports over imports
	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000
	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds	pounds
1910-11:	17,615	1,328	b/	362	19,305	251	61	1,113	378	1,803	17,502
1911-12:	26,484	1,480	60	461	28,485	157	76	1,415	557	2,205	26,280
1912-13:	19,582	1,744	14	353	21,693	287	73	1,451	542	2,353	19,340
1913-14:	27,817	1,826	19	361	30,023	282	79	1,591	506	2,458	27,565
1914-15:	16,490	1,734	38	419	18,681	165	64	1,440	551	2,220	16,461
1915-16:	24,250	1,558	56	481	26,345	136	64	1,686	552	2,438	23,907
1916-17:	27,742	1,135	310	425	29,612	210	50	2,405	715	3,378	26,234
1917-18:	20,244	1,004	302	314	21,864	616	45	3,491	655	4,807	17,057
1918-19:	31,506	871	170	437	32,984	500	40	4,094	729	5,363	27,621
1919-20:	28,950	726	279	922	30,877	880	80	4,160	669	5,789	25,088
1920-21:	23,306	558	98	724	24,686	712	69	6,206	624	7,611	17,075
1921-22:	22,903	445	17	863	24,228	1,050	22	2,739	251	4,062	20,166
1922-23:	21,596	318	48	1,087	23,049	1,228	25	4,087	342	5,682	17,367
1923-24:	32,916	352	10	714	33,992	4,557	27	3,453	317	8,354	25,638
1924-25:	43,196	327	83	534	44,140	7,082	33	2,748	308	10,171	33,969
1925-26:	37,193	403	145	307	38,048	4,907	40	3,412	313	8,672	29,376
1926-27:	28,883	291	235	385	29,794	5,703	33	4,175	294	10,205	19,589
1927-28:	28,088	282	288	589	29,247	3,985	36	5,596	311	9,928	19,319
1928-29:	32,932	260	284	423	33,899	6,761	34	4,952	247	11,994	21,905
1929-30:	25,973	281	293	523	27,070	4,552	40	5,283	256	10,131	16,939
1930-31:	27,971	220	342	560	29,093	1,608	33	3,060	229	4,930	24,163
1931-32:	25,427	118	313	404	26,262	2,845	21	1,436	175	4,477	21,785
1932-33:	20,893	90	264	376	21,623	5,116	15	832	89	6,052	15,571
1933-34:	29,206	64	258	431	29,959	4,187	17	593	97	4,894	25,065
1934-35:	26,349	70	304	653	27,376	2,977	12	614	98	3,701	23,675
1935-36:	28,743	73	328	454	29,598	1,921	13	831	94	2,859	26,739
1936-37:	28,525	60	372	347	29,304	3,283	14	919	91	4,307	24,997
1937-38:	42,460	38	2,477	7,108	52,083	6,598	191	993	108	7,890	44,193

Compiled from Annual Statements of the Sea-borne Trade of British India. Exports by destination and imports by source are shown in tables on pages 67 and 68.

^{a/} Figures for 1937-38 not comparable with previous years due to Burma being separated from India.

^{b/} Not separately reported, included with "Other products," if any.

Leaf tobacco has always accounted for most of the total tobacco exports by sea and since 1923-24 most of the imports have also been either leaf or strips. Prior to this date imports were largely cigarettes and pipe tobacco.

In addition to the movement by sea, there is a substantial movement by land routes into and out of Iran, Afghanistan, Kashmir, Nepal, Tibet, and certain other Central Asiatic territories. This movement is by rail and caravans and is not generally considered in the international trade of India. It is all with the interior of Asia, a section that is of limited importance in world markets. Since 1930-31 the outward shipments from India, largely domestic leaf, have ranged between 8,700,000 and 11,000,000 pounds annually. Shipments into India, also largely leaf tobacco, have fluctuated between 5,800,000 and 11,200,000 pounds annually (see table 10).

Table 10.- Exports and imports by land routes of leaf tobacco from India, excluding Burma, 1930-31 to 1937-38 a/

Year beginning April 1	Exports				Total	Imports				Total
	:Routes:	:Routes:	:Routes:	:		:Routes:	:Routes:	:Routes:	:	
	: A	: B	: C	:		: A	: B	: C	:	
	:1,000	:1,000	:1,000	:	1,000	:1,000	:1,000	:1,000	:	1,000
	:pounds:	:pounds:	:pounds:	:	pounds	:pounds:	:pounds:	:pounds:	:	pounds
1930-31....	434	5,206	4,690	:	10,330	610	5,883	3,327	:	9,820
1931-32....	595	5,647	4,767	:	11,009	636	6,292	2,310	:	9,238
1932-33....	444	4,094	4,692	:	9,230	320	7,136	3,782	:	11,238
1933-34....	320	3,305	5,147	:	8,772	295	3,411	3,922	:	7,628
1934-35....	424	3,570	5,108	:	9,102	532	2,026	3,235	:	5,793
1935-36....	236	4,086	5,379	:	9,701	696	5,298	3,628	:	9,624
1936-37....	323	3,354	5,446	:	9,123	448	5,200	2,565	:	8,213
1937-38....	284	3,604	4,761	:	8,649	366	5,602	3,451	:	9,419

Compiled from data published in "Report on the Marketing of Tobacco in India and Burma," by Office of the Agricultural Marketing Adviser to the Government of India, Delhi. Official returns showing trade by land routes include only the item tobacco. It apparently, and particularly in the case of the export trade, includes small quantities of tobacco products.

a/ Routes A include trade largely with Iran and western and southern Afghanistan; Routes B with northern and eastern Afghanistan, Kashmir, and through them with Central Asia and Turkistan; and Routes C with Tibet, Nepal, Shikkim, and Bhutan.

Leaf Tobacco 1/

Imports

In recent years imports of leaf tobacco into India including Burma have been comprised almost entirely of flue-cured leaf from the United States for use in the manufacture of cigarettes. The leaf is imported both direct from the United States and by trans-shipment through United Kingdom ports. Leaf imports from other sources include relatively small quantities from Continental Europe, Egypt, Aden,

1/ Unless otherwise expressly stated, the following observations on imports and exports refer only to the sea-borne trade of India.

Ceylon, Straits Settlements, China, and Hongkong, all of which may include some American leaf that has been reexported from these places. There are small quantities imported from Turkey and Persia, apparently Oriental tobacco for use in cigarettes. Small quantities imported from Sumatra and a part of the imports from Ceylon and other Oriental points are apparently used in the manufacture of cigars, cheroots, and chewing tobacco.

The bulk of leaf imports in recent years has been as strips. Unstemmed leaf shipped to the country is usually held in bond until stemmed, and only the strips cleared through customs. This is done to avoid high duty payment on stems.

Leaf and strips imported in 1909-10 totaled 2,703,000 pounds, of which 1,863,000 came from the United States or the United Kingdom. For the following year the volume declined sharply as a result of a reduction in the use of American leaf in the manufacture of cigarettes. It was not until 1923-24 that they again exceeded 2,000,000 pounds. From that year until 1937-38 they ranged between 1,600,000 and 7,100,000 pounds. The trend in recent years, though not pronounced, has been downward, which is significant in view of the fact that total domestic utilization in cigarette manufacture has increased substantially. This has resulted from the substitution of Indian flue-cured leaf for American.

In 1937-38, the first year in which Burma was considered as being independent of India, leaf and strips imported totaled 6,598,000 pounds, of which 3,538,000 pounds were from Burma. Of the remaining 3,060,000 pounds, 3,004,000 were from either the United States or the United Kingdom.

Exports

Exports of leaf from India including Burma have, until recent years, been largely domestic types sent abroad for use in the manufacture of pipe tobacco, cigars and cheroots. Since 1932-33 the export of Indian flue-cured, and to some extent burley, leaf, has become of increased importance.

Foreign markets for Indian leaf have for many years been such nearby countries as Aden, Ceylon, the Straits Settlements, and the Federated Malay States; the far-eastern countries of China and Japan; the countries of Continental Europe; and the United Kingdom. In recent years exports to the United Kingdom have increased and in general those to most other areas have decreased. Larger exports to the United Kingdom, which during the 5 years 1933-34 to 1936-37 averaged about 45 percent of total exports, have resulted primarily from the duty preference granted by the United Kingdom on Empire leaf. The preference was first introduced in September 1919, and since 1932 has been about 50 cents per pound. Its effect has been to increase the United Kingdom's takings of leaf, and particularly those types which can be used in place of American leaf, from India, Canada, and the British South African areas. 1/

Exports of Indian flue-cured leaf, which have increased from less than 500,000 pounds in 1932-33 to over 8,000,000 pounds in 1937-38, have been almost entirely to the United Kingdom. For 1938-39 it is thought that flue-cured exports totaled over 20,000,000 pounds, of which about 2,000,000 were sent to China and

1/ Details regarding increased consumption in the United Kingdom of Empire leaf resulting from tariff preferences are given in "Tobacco Market in the British Isles," F.S. - 72 by the Office of Foreign Agricultural Relations, United States Department of Agriculture, released in November 1937.

to Hongkong and the remainder to the United Kingdom. This is the first year in which shipments were made to China and Hongkong. They developed because the war in China has prevented the marketing of a large part of the flue-cured crop produced in that country.

Exports of burley, which are entirely to the United Kingdom, began about 10 years ago and have ranged between about 400,000 and 1,400,000 pounds annually.

Total exports of all types from India including Burma in 1909-10 totaled only 10,636,000 pounds but since that year have ranged between 16,500,000 and 43,200,000 pounds. The trend was upward from 1909-10 to 1924-25, the year of highest export. From then to 1932-33 exports tended to decline and for that year totaled 20,893,000 pounds. Since 1932-33 there has been a decided upward trend, primarily as a result of increases in flue-cured exports. For 1937-38 the first year that Burma was considered independent of India, exports totaled 42,460,000 pounds; of which 7,628,000 were to Burma. Of the remaining 34,832,000 pounds, 22,049,000 were to the United Kingdom.

Cigarettes

Imports

From 1900-01, the year when cigarette imports were first separately reported, until 1931-32 imports into India including Burma ranged from around 1,000,000 pounds to near 6,000,000 pounds annually. Tariff increases in 1931 caused a sharp decline in imports and since that year, annual takings have been below 1,000,000 pounds. The decrease has been offset by the manufacture in India of cigarettes similar to those previously imported.

For 1937-38, the first year that Burma was independent from India, total imports were 993,000 pounds, of which 15,000 were from Burma. 1/ Of the 978,000 pounds imported from points other than Burma, 937,000 pounds were from the United Kingdom and 29,000 pounds from the United States. These imports from the United States were the highest since 1930-31 when they were 34,000 pounds.

Exports

Exports of cigarettes have never greatly exceeded 350,000 pounds annually and during recent years have been limited almost entirely to shipments to Ceylon, the Straits Settlements, and the Federated Malay States. For 1937-38, the first year that Burma was independent of India, cigarette exports totaled 2,477,000 pounds. Of this amount 2,058,000 were to Burma. Of the remaining 419,000 pounds, which is the highest total on record to points other than Burma, 323,000 pounds went to Ceylon.

Cigars

Imports of cigars have seldom exceeded 150,000 pounds annually and since 1910-11 have not exceeded 80,000. The trend has been decidedly downward and for the period 1932-33 to 1936-37 imports averaged only about 14,000 pounds annually.

1/ The imports from Burma are probably reexports from the port of Rangoon as there are only one or two small cigarette factories in Burma.

Exports of cigars have never equaled 2,000,000 pounds annually. The highest export on record is 1,826,000 pounds for 1913-14. Since that year exports have declined, and for 1936-37 totaled only 60,000 pounds.

Miscellaneous Products

Imports of miscellaneous tobacco products, largely pipe tobacco, have seldom exceeded 2,000,000 pounds annually. Since 1900-01, the trend has been decidedly downward and for 1936-37 imports totaled only 91,000 pounds. Most of the total has been accounted for by imports from the United Kingdom and the United States.

Exports of miscellaneous products have seldom exceeded 600,000 pounds annually. The highest export on record was 1,087,000 pounds in 1922-23. The trend has been downward since that year and exports in 1936-37 totaled only 347,000 pounds.

Export and Import Duties

Export Duties

There has never been an export duty on leaf tobacco or tobacco products leaving the ports of India and Burma. However, certain independent states have had and some still have relatively low duties on such products sent out of the territory under their control.

Import Duties

Prior to 1910, import duties on leaf tobacco and tobacco products were relatively low, usually from 5 to 10 percent of value. For a period between 1894 and 1910 leaf tobacco was free of duty. Since March 4, 1910, there has been a series of increases in duties on both leaf and tobacco products. The latest increases were in 1934. Since August of that year, the duty on leaf from sources other than British Colonies, and for purposes other than use in the manufacture of cigars has been 3/4/0 Rupees (approximately \$1.23) per pound. The duty on such leaf for use in cigars has been 2/0/0 Rupees (about \$0.76) per pound.

Since January 1933, a duty preference has been granted on leaf tobacco imported from British Colonies. The preference was first fixed at 25 percent, but in 1934 was reduced to 15 percent. With this preference the duty since August 1934 on leaf tobacco from British Colonies for use other than in the manufacture of cigars has been 2/12/0 Rupees (approximately \$1.04) per pound, and for such leaf to be used in cigars 1/8/0 Rupees (approximately \$0.57) per pound.

Since March 1934, the duty on cigarettes regardless of origin has been 25 percent ad valorem plus either 8/2/0 Rupees (approximately \$3.07) per thousand, or plus 3/4/0 Rupees (approximately \$1.23) per pound. The selection of the fixed rate charged per thousand pieces or per pound is dependent upon which rate yields the greatest return.

The duty on cigars has not been changed since September 1931 when it was established at 112.5 percent ad valorem. The duties on tobacco products other than cigars and cigarettes have also not been changed since September 1931 and have been 3/12/0 Rupees (approximately \$1.26) per pound.

When Burma became independent of India on April 1, 1937, an agreement was made between the two countries whereby Indian goods could be imported into Burma and Burmese goods imported into India free of duty. This agreement is to extend until April 1, 1940. After that date, each country has the privilege of applying duties on goods imported from the other.

MANUFACTURE AND CONSUMPTION

Total Consumption

In recent years India excluding Burma has consumed approximately 1,100,000,000 pounds (farm weight) of tobacco annually, according to official records of production. Of this amount, over 60 percent is consumed as pipe tobacco, about 10 percent in bidies, 15 percent as chewing tobacco, 10 percent in cigars and cheroots, and approximately 2 percent each as snuff and in cigarettes. Per-capita consumption of the 300,000,000 people in the country averages about 3.0 pounds per year. This is materially below the average per-capita consumption in the United States in recent years of approximately 6.6 pounds. However, it is in excess of the per-capita consumption in China, estimated at 2.8 pounds, and of the Japanese Empire, estimated at 2.1 pounds.

Low per-capita consumption in comparison with the United States can be attributed to low purchasing power of the people, and the betel nut and betel leaf chewing habit of a substantial part of the population. 1/

Near 90 percent of India's population can be classed as rural, practically all of whom are of low caste and have very limited incomes. Most of the remaining 10 to 12 percent are city and town laborers of very low incomes. Farm wages average about 12 cents per day for men and 8 cents per day for women, and the daily income of native farmers and croppers, as well as of town and city laborers, does not greatly exceed these amounts. The income of these classes is not sufficient to adequately feed and clothe them and only very limited funds are available for the purchase of tobacco and other luxuries. As a consequence, tobacco consumption is largely limited to the use of lower-priced products such as hookah, chewing and snuff tobacco, and low-priced bidies and cheroots.

Pipe Tobacco

The smoking of hookah pipe tobacco is universal throughout India. Leaf consumption in this form is approximated at 700,000,000 pounds (farm weight) annually. The smoking of natural leaf and pipe mixtures similar to those used in the

1/ Chewing by both sexes of betel leaf and betel nut is extensive. It is not a substitute for tobacco, but its use tends to limit tobacco consumption. Betel leaf is from a species of the pepper plant and the betel nut is from the areca palm. The leaf, which has a mild sour taste, is chewed green. The nut, which has a very sour taste, is chewed fresh or after it has been boiled or dried. The most common practice is for leaf and nuts to be used together with a mixture of quick lime, "Katha" (English equivalent not known), cloves, cinnamon, nutmeg, and other spices. A coating of lime is spread on the back of the betel leaf, to which may be added the "Katha" which tends to reduce the burning properties of the lime. On top of this is sprinkled powdered or dessicated betel nuts, cloves, cinnamon, and other spices. The mixture is rolled in the leaf and chewed as a quid of tobacco. Spittle from the chew is bright red. Betel leaf and nut are also sometimes used in chewing tobacco.

United States and the United Kingdom is limited. The use of natural leaf is believed to amount to less than 10,000,000 pounds annually and that of prepared pipe mixtures to about 250,000 pounds annually.

In the making of hookah tobacco the leaf and other portions of the plant are first pounded into fine dust or granulated form (see figure 15). To this there are usually added seasonings of various kinds, including cloves, cinnamon, and various local spices or condiments. Hashish, the top leaves and flowers of the narcotic hemp, is sometimes illegally added. Oils of various kinds are frequently added to the dry mixture. The final process in the preparation consists in the adding of sufficient black strap molasses to make a thick paste.

There are no standard brands or uniform packages for hookah tobacco. Each producer makes up one or more mixtures that are demanded by his trade. It is retailed in bulk, usually by the man who makes it. Quantities sold to consumers vary from the amount required for one smoke to several pounds. A portion of retail sales is to customers who smoke it in retailers' shops in pipes kept on hand for this purpose. Prices for the product are low, averaging only a few cents per pound. The processor's and retailer's profit represents only a small percentage of the cost of labor and ingredients used in the preparation of the product.

Bidies

The bidie, which is extensively smoked in India and particularly in the districts south of Bombay and Calcutta, consists of granulated tobacco rolled in a section of the leaf of a species of Indian ebony and tied with a thread. It is small and contains about one-half or less than half of the amount of tobacco in a standard size cigarette. They were used in the country for many years prior to the introduction of cigarettes and represent a distinct product.

The ebony leaf is thick and sufficient of it is used with each bidie to make the product about one-half leaf and one-half tobacco. The taste is therefore a blend between tobacco and the ebony leaf, and is quite agreeable. The entire consumption of bidies in the country is from domestic production. There are no imports and but limited exports. Total tobacco consumption in this form in recent years is approximated at about 100,000,000 pounds (farm weight) annually.

Bidies, which are entirely hand made, are largely produced by small establishments throughout the country that in most cases are also retail tobacco shops. The shopkeeper, and one or more employed makers usually working on a piece basis, roll the bidies while attending retail trade. There are, however, several large producing concerns located in the principal cities of the country who produce standard brands of bidies, but their output is small in comparison with the total. Bidies from the larger establishments are packed for retail trade in paper packs which in most cases contain 25 pieces. The paper wrapping bears the trade-mark, brand, and name of the company. Those produced by small establishments are usually tied with a string in bundles of 25, but it is a common practice for them to be sold separately in quantities that can be purchased with the lowest valued coin in circulation.

The proportion of the sale value of bidies that goes to producers and retailers is substantially larger than is the case with hookah tobacco. They retail for extremely low prices however. Better qualities sell for around 75 cents per 1,000 pieces, inferior grades as low as 18 cents, and average quality at about 45 cents per 1,000.

Chewing Tobacco

Chewing tobacco is used throughout India, but its consumption is largest in the southern districts. Consumption is almost entirely from local production. There is practically no import and export trade in the product. Total leaf consumption in chewing tobacco in recent years is approximated at about 150,000,000 pounds (farm weight) annually. It is used both as natural leaf and in prepared form.

Prepared chewing tobacco consists of whole or broken leaf mixed with various spices, molasses, lime, betel leaf, betel nut, and oils. The leaf is sometimes boiled either with or without the other ingredients and prepared into a paste or crude dried chunks or balls. There are but few large firms which produce chewing tobacco. Most of the production is by smaller shopkeepers who prepare the product for their retail trade. There are no uniform plugs or packages. The product is sold in bulk in quantities varying from one chew to several pounds. Prices are low, averaging only a few cents per pound.

Cigars and Cheroots

Cigars and cheroots are in general use throughout the country, but the principal consuming districts are in the southern and eastern sections. Domestic production supplies most of the demand, but relatively large quantities of cheroots are shipped in from Burma, and some cigars are imported from Continental Europe, the Philippines, United States, and the United Kingdom.

Total tobacco used in cigars and cheroots is approximated at about 115,000,000 pounds (farm weight) annually. The consumption and production of cigars is insignificant in comparison with cheroots. There are only a few concerns in the country manufacturing cigars. Production of both cigars and cheroots is entirely by hand. Some are attractively packed in boxes containing from 5 to 100 pieces, which bear the trade-mark, brand, and name of manufacturing company. They are distributed direct from factory to retailer or through wholesale houses that handle them along with a large number of other products. Prices for cigars vary widely between different brands, but average about \$15.00 to \$20.00 per 1,000. Prices for cheroots average about \$2.00 per 1,000.

Snuff

Snuff is used in all sections of India, but total utilization, which is almost entirely supplied by domestic production, is small in comparison with the use of most other tobacco products. Consumption is almost entirely by snuffing. Dipping is seldom practiced.

It is estimated that total tobacco consumption in the form of snuff in recent years has been only about 20,000,000 pounds (farm weight) annually. Production is carried on by a number of relatively small establishments that powder the leaf, usually by beating or grinding with mortar and pestle. The leaf is often boiled and dried before powdering. A variety of oils, perfumes, and spices are mixed with the leaf powder. Distribution is carried out by sales direct to retailers and to wholesalers who handle snuff along with a number of commodities. Prices are low and do not greatly exceed the value of the labor and ingredients used in preparation.

Cigarettes

Consumption and Trends

Cigarettes have been used in India for 50 years or more, but the consumption has been low in comparison with that of other tobacco products. For the years 1937 and 1938, quantities of tobacco consumed in cigarettes averaged only about 22,000,000 pounds (farm weight) annually as compared with over 1,050,000,000 pounds used in other products. In terms of numbers of cigarettes, the consumption is approximately 7,300,000,000 pieces annually, or about 20 to 25 cigarettes per capita per year.

Low cigarette consumption can be attributed almost entirely to low purchasing power of most of the population and higher prices for cigarettes than for other tobacco products. It is believed that only about 5 percent of the population can be classed as financially able to use cigarettes at prices for which most brands have been sold in recent years. Practically all of the people with higher incomes are located in the larger towns and cities and as a consequence consumption is largely restricted to these areas. Consumption in the smaller towns and rural districts, which include approximately 90 percent of the population, is believed to account for less than 15 percent of total quantities consumed.

Since 1900 the trend in cigarette consumption has been upward, but there have been a number of sharp recessions which have lasted from 1 to 8 years. These recessions have resulted primarily from labor or political disturbances accompanied by noncooperative movements against foreigners and foreign goods, and particularly against British interests. The cigarette industry of the country is largely in the hands of the British and boycotts against them have caused sharp reductions in cigarette sales. Consumption during periods of boycotts shift from cigarettes to bidies, cheroots, and hookah tobacco which are produced almost entirely by natives. From 1900-01 to 1909-10 consumption increased progressively from around 1,000,000 pounds to near 5,000,000 pounds (storage weight) annually. Labor disputes between natives and British-owned companies in 1909-10 accompanied by a noncooperative movement and boycott of foreign goods that extended into 1910-11 resulted in consumption for that year falling to near 3,000,000 pounds.

Following the sharp decline in 1910-11 consumption increased until 1919-20 when it was estimated at about 8,500,000 pounds. Political disturbances and non-cooperation began again in 1919-20 and extended into the next 2 years. As a consequence, consumption declined to less than 7,000,000 pounds in 1921-22. From that year until the Gandhi movement, consumption increased sharply and reached a record of about 20,000,000 pounds in 1928-29.

The Gandhi movement and accompanying boycott were more pronounced than previous boycotts and caused a sharp decrease in cigarette consumption. It was carried to such an extent that industrial production and building was greatly restricted. As a consequence incomes were reduced and low purchasing power was added to the effect of the boycott in reducing cigarette consumption. Consumption dropped to about 11,000,000 pounds in 1931-32 and did not reach the previous high of 1928-29 until 1937-38 (see figure 16).

A substantial part of the increase in consumption since 1931-32 has resulted from leading cigarette manufacturers having placed on the market low grade cigarettes at near cost price, which enables them to be sold in competition with

Manufacture

The first cigarette-making machines used in India began operating in 1906 and were in a small factory at Karachi owned by Tobacco Manufacturers (India) Limited. The first factory of any size was built by the same company at Monghyr in 1907 and the equipment from the Karachi plant was moved to it. Tobacco Manufacturers (India) Limited later built factories at Bangalore in 1913, Saharanpur in 1925, Hyderabad Deccan in 1930 and in 1933 they acquired a plant at Calcutta that had just begun operating under the management of the Carreras Company. All five of these plants are still in operation and each has a number of modern cigarette machines and auxiliary equipment. The only other modern factory in operation in the country in 1938 was located at Calcutta. It was started in 1932 and is owned by a firm incorporated under the name of National Tobacco Company Limited.

There are a number of small manufacturing concerns at points throughout the country that have one or two machines. Towns in which these plants are located include Bombay, Madras, Allahabad, Lahore, Jullunder, Baroda, Gwalior, Sukkur, and Hyderabad (Deccan). The combined production of these small companies has increased sharply since the Gandhi movement, but their leaf requirement during 1936-37 and 1937-38 was only about 2,000,000 pounds annually.

The making of hand rolled cigarettes for retail trade has never developed in India as it has in China, the Netherlands Indies, and certain other Oriental countries. It is believed that leaf used in these products is restricted to a few thousand pounds. Smoking of cut tobacco in "roll your own" cigarettes is also insignificant.

Leaf used 1/ -- When domestic cigarette production began the leaf used was largely American flue-cured. This probably resulted from the fact that the first manufacturer was a British organization accustomed to using flue-cured leaf. The market for cigarettes at prices which permitted the use of American flue-cured leaf, however, was so limited that production of cheaper cigarettes from Indian native types was soon begun. Beginning with 1909-10 the shift to native types was very rapid.

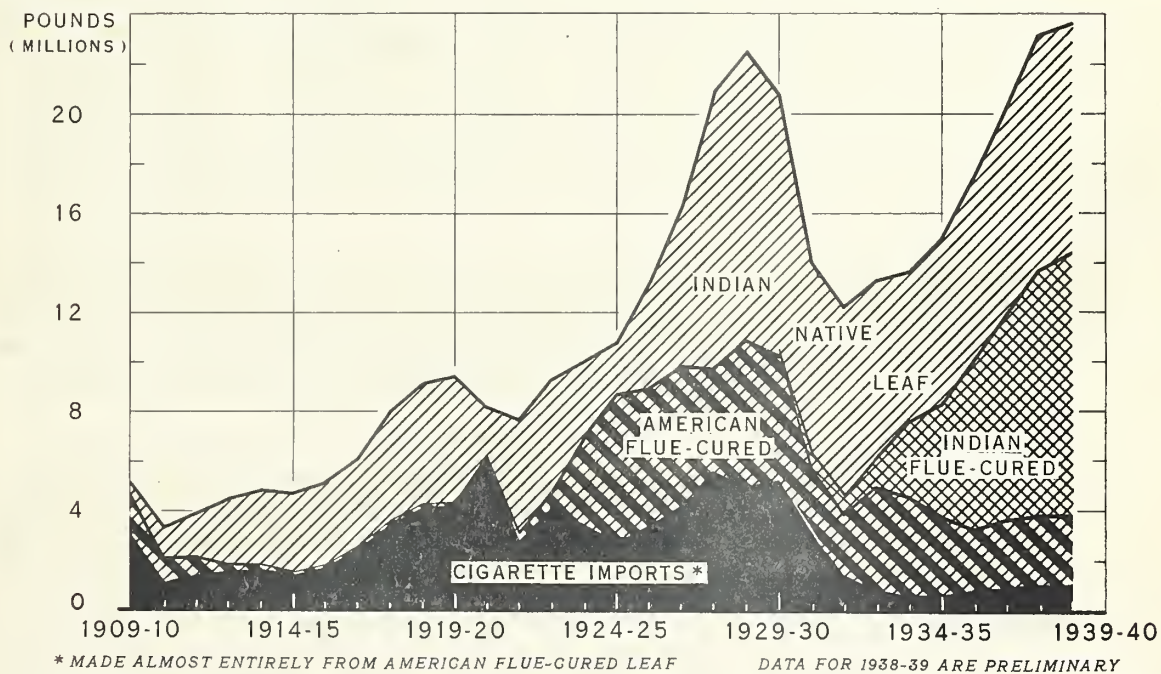
In 1910-11 total utilization was approximately 2,200,000 pounds of which 1,300,000 was native types and only 900,000 pounds American flue-cured leaf and strips. Use of American declined further for the years immediately following and from 1912-13 to 1921-22 were insignificant, totaling for most years about 100,000 pounds or less. During this period the demand for high-grade cigarettes made from American leaf was supplied by cigarette imports. Sharp increases in the import duty on cigarettes that occurred in 1921 and 1925, stimulated the domestic manufacture of cigarettes made from American flue-cured. In 1928-29, which was a peak year in domestic manufacture, total leaf used was approximately 17,500,000 pounds, of which about 5,800,000 pounds was American flue-cured strips and leaf, and 11,700,000 native types.

1/ Estimated quantities of leaf used in domestic manufacture includes substantial quantities used in cigarettes for export to Burma. There are but one or two cigarette factories in Burma and the demand for that country is met almost entirely by shipments from India.



Fig. 15. Pounding tobacco into dust for use in making
Hookah Tobacco.

(Courtesy of the Agricultural Marketing Office of the Government of India)



U. S. DEPARTMENT OF AGRICULTURE

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Fig. 16. Weight of Cigarettes imported into India
including Burma, and weight of leaf by types used in
the domestic manufacture of cigarettes.

The use of Indian flue-cured began in 1929-30 and has expanded rapidly. It has to a considerable extent replaced both American flue-cured and Indian native types. By 1934-35, 4,500,000 pounds of a total utilization of approximately 14,300,000 pounds were estimated to be Indian flue-cured. Of the remaining 9,800,000 pounds 6,600,000 pounds were of Indian native types and only 3,200,000 pounds of American flue-cured. For 1937-38, the utilization of Indian flue-cured leaf was estimated at approximately 9,800,000 pounds, that of Indian native type at 9,500,000, and that of American flue-cured at 2,900,000 pounds (see figure 16).

Indian native types are practically never used except in low-priced cigarettes, and American flue-cured is seldom used except in the higher-priced. Indian flue-cured leaf is now being extensively used in medium-priced cigarettes. Limited quantities of the better grades of this type are used in higher-priced cigarettes, and rather large quantities of low-grade leaf and stems are used in low-priced.

Stocks carried -- Quantities of leaf carried in stock by cigarette manufacturers in relation to yearly disappearance are not as high as in the United States. Climatic conditions are very unsatisfactory and in order to maintain color, as well as to prevent damage from weevil and insects, flue-cured leaf must be held in cold storage warehouses. As a consequence, stocks of American flue-cured strips and leaf seldom exceed 3 or 4 months' requirements.

Since color is not of primary importance in native cigarette tobacco and in average to low quality Indian flue-cured, large stocks can be carried. In recent years leading manufacturers have attempted to maintain their supplies of these types so that requirements of leaf for a year or more will be on hand at the time the new crop is available. For the past few years stocks of native types have usually been below this amount, but quantities of flue-cured have been equal to or in excess of it.

Seasonal fluctuation -- There is a wide seasonal fluctuation in cigarette manufacture which follows changes in climatic conditions. Consumption is highest in the dry months, October to May, and falls during the hot rainy season. Storage conditions for cigarettes are very unsatisfactory during the rainy season and are more favorable in the dry season. As a consequence, production varies somewhat more widely than consumption.

Production is at its highest during the months December, January, and February when consumption is high and storage conditions most favorable. The monthly output for this period is normally about 25 percent above that of the period June, July, and August when consumption is down and storage conditions most unsatisfactory.

Taxes

There has never been a tax on cigarettes that applied to the whole of India; however, many of the native states and numerous towns and other political subdivisions have for many years been collecting revenue from the sale of cigarettes. Taxes imposed include: (1) license fees for wholesalers and retailers of cigarettes and other tobacco products; (2) terminal taxes, which are the most common form and are collected by numerous towns in the form of a poundage or ad valorem tax on goods arriving for consumption in the town; (3) excise taxes, which are either a uniform rate for all cigarettes or vary in proportion to value; and (4) import

In May 1938 approximately 45 percent of the cigarettes consumed in India were sold in areas where some form of direct taxation was imposed. The rates varied from only a fraction of 1 percent of value in the case of town and city terminal taxes, to over 100 percent in the case of certain excise taxes and import duties collected by native states. The proportion of cigarettes taxed at a high rate is small in relation to those taxed at low rates, and the average tax, in areas where they are collected, is only about 2.50 to 3.00 percent of value. The average rate on total sales, including cigarettes sold in tax-free areas, is only about 1.25 percent.

In the areas where taxes are low, leading manufacturers give a discount on the wholesale price of cigarettes, except in the case of extremely low-priced brands, which is equal to the amount of the tax. Consequently the majority of retail sales of individual brands are made at a uniform price throughout most of the country.

Brands, Blends, and Packings

There are at present some 200 or 300 brands of cigarettes sold in India, most of which are of domestic production. About 85 percent of total sales, however, are represented by less than 50 brands produced by leading domestic manufacturers. The large number of brands results from the fact that registry of brands and trade marks is not required and also from the practice followed, especially by the small manufacturers, of continually introducing new brands with the hope of increasing sales. Numerous brands are labeled with slogans or catch phrases that are popular at the time they are introduced and are used for the purpose of attracting consumers. When a new popular catch word comes along, another brand is added. Some of the smaller companies also use brand names similar to the most popular brands of leading manufacturers with the hope of securing a portion of the sales that would otherwise go to popular brands.

Blends do not necessarily vary with brands, as cigarettes sold under several names may be made from exactly the same leaf. Different blends used in cigarettes of domestic manufacture include those with only American flue-cured, mixtures of American and Indian flue-cured, mixtures of Indian flue-cured and Indian native types, and straight Indian native types.

The standard case packed by leading manufacturers contains 50,000 cigarettes, but a large percentage of the production is packed in half cases of smaller quantities. The cases are of wood and during the rainy season they are lined with waterproof paper to prevent damage from excessive humidity.

Retail packages consist of packs or boxes of 5's, 10's, 20's, and 100's and tins of 50's. Only the better brands are packed in tins and the use of boxes of 100's is restricted to the cheaper grades which are usually retailed by the piece.

Distribution

Cigarettes manufactured by small concerns are delivered direct from factory to retailer, or sold through wholesale houses that handle tobacco products along with a number of other articles. The leading manufacturing concern delivers most of its products direct to retailers or sells to brokers who distribute them to retailers. This company maintains a sales depot in each sales territory where a stock of cigarettes is maintained that is at all times sufficiently large to fill

The majority of retailers are small shopkeepers, most of whom handle only cigarettes, other tobacco products, betel leaf, betel nuts, and certain small wares such as tobacco accessories and trinkets of various kinds.

Prices

Prices for cigarettes vary widely. The lowest-priced brands retail as low as \$ 0.47 per thousand pieces whereas the highest-priced imported brands sell for as much as \$21.00 per thousand. Approximately 70 percent of total sales retail for less than \$2.00 per thousand and the average retail price for all sales is about \$2.50 per thousand.

The following tabulation shows the approximate percentage of total cigarette sales in 1937-38 in different price groups and the approximate average price for each group in rupees and in United States dollars:

Group	Percentage of total sales	Average price per 1,000 pieces	
		Rupees	United States dollars
1	19	1- 4-0	0.47
2	23	2- 4-0	0.84
3	6	3- 8-0	1.31
4	20	4-12-0	1.78
5	8	11- 4-0	4.21
6	9	14- 4-0	5.33
7	7	18- 6-0	6.87
8	7	20- 0-0	7.48
9	1	27- 8-0	10.29
	<u>100</u>		

Cigarettes in group 1 of the above tabulation are made almost entirely from Indian native leaf. Their price is near cost of production and they are sold in competition with bidies. Sales of this group are largely limited to districts where bidie consumption is high and cigarettes are not in general use.

Cigarettes in group 2, which represent approximately 23 percent of total sales, are made from a mixture which is largely native leaf, a portion of low-grade Indian flue-cured leaf, and flue-cured stems.

Cigarettes in groups 3 and 4, which represent about 26 percent of total consumption, are made from a mixture which is largely medium- to low-grade Indian flue-cured and a portion of Indian native leaf.

Groups 5, 6, and 7, which represent about 24 percent of total sales, are cigarettes made from a blend of Indian flue-cured mixed with some American flue-cured and in certain brands a small portion of Indian native leaf.

Those in group 8, which represent about 7 percent of total production, are presumably made exclusively from American leaf, but it is believed that certain brands contain as much as 10 percent of better-quality Indian flue-cured.

Group 9, which is largely imported, includes a variety of cigarettes made from different mixtures of American and Turkish leaf.

TOBACCO IN BURMA

Until April 1, 1937, Burma was included with the British Provinces of India. Since that date it has been separated from India but has remained a part of the British Empire.

In the preceding pages on tobacco in India, Burma was considered as a separate territory; however, many of the statements made for what is now India are also applicable to Burma. This is particularly true as regards the history of tobacco production and consumption, the wide variation found in cultural and curing practices, the crossing and commingling of types grown, the absence of standardization in grading and marketing, and to some extent the consuming habits of the people.

Burmese leaf and tobacco products have never been significant in competition with the export of American leaf, nor the sale of American leaf, nor of products derived from it in Burma. As a consequence, it is not important for American farmers to know details regarding the country's production and consumption of tobacco. Recent developments, however, indicate that Burmese leaf may soon be sold in more direct competition with American. It is therefore important that American growers have at hand general information regarding the country's potentialities for tobacco production and consumption, a brief summary of the present situation and possible future developments.

GENERAL ECONOMIC, SOIL, AND CLIMATE FACTORS

Burma is located in southern Asia just east of India. Its area, including certain independent states and unadministrated districts, is about 262,000 square miles, which approximates the combined area of the South Atlantic States from Delaware to Florida. In 1931, the population was near 15,000,000 as compared with 16,000,000 in the South Atlantic States. Most of the inhabitants are uneducated native Burmese. The European and educated Burmese population is small and limited to people in business in the larger cities and towns and those managing the larger agricultural and industrial projects in the interior. Farming, including tobacco growing, is largely in the hands of natives.

The country is comprised of a narrow coast line down the west side of the Malay peninsula and a large area north and west of the peninsula. The Malay peninsula district is a narrow coastal plain which rises to the east to mountains of 3,000 feet or more. It is cut by small streams flowing in a general direction from east to west that form narrow valleys. Agriculture in the district is not extensively developed.

The part of Burma north and west of the Malay peninsula is made up of the Irrawaddy and Salween River valleys, which drain from the north into the Bay of Bengal, and the surrounding plateau and mountain areas. The highest mountains, which are 6,000 feet or more in altitude, are those that separate the country from India, China, and Siam. Most of the high land in the central part between the two river valleys is below 3,000 feet in altitude.

Soils

Soils of the extensive northern portion of the country have been derived primarily from sandstone and limestone formations. The plateau and mountain lands are largely stiff red clays, which, despite the fact that they have been partly derived from limestone, are acid in reaction. Soils along the slopes of hills and mountains are calcareous sandy to sandy loams. The alluvial valley soils on which most of the tobacco is grown vary from calcareous light sandy soils to silty clays. The large delta area at the mouths of the two main rivers is comprised of fertile, slightly calcareous, fine sandy loam with peaty layers.

An area in the northeast section of the country and the entire peninsula district is comprised of soil derived from crystalline and metamorphic rocks. It is usually red in color, usually alkaline in reaction, and low in fertility.

Climate

Temperatures in different sections of Burma vary widely in accordance with altitude. In most of the agricultural districts, however, monthly averages through the year range between 70° and 90° F. At Mandalay, which is in the Irrawaddy Valley and near the center of the country, monthly average maximum temperatures range around 84° F. in December and January, the coolest months, to near 100° F. in March, April, and May, the hottest months. Daily average fluctuations are wide and at Mandalay average minimum temperatures in December and January are below 60° F. and average around 75° F. in March, April, and May (D).

The country is influenced by the Indian monsoon winds and has pronounced wet and dry seasons. The average rainfall is very high in southern or lower Burma, which is adjacent to the Bay of Bengal, but is only moderately high in most of the northern area. For lower Burma the yearly average rainfall is 126 inches. December to March are dry months during which monthly averages are near one-half inch or below. Beginning with April, rains increase, and from June through August monthly averages range from 26 to 30 inches. Upper Burma has something of the same seasonal variation but the amplitude during the rainy season is not nearly so great. The average annual rainfall for the area is only 48 inches. For January, the monthly average is only .1 of an inch, and during the rainy months June through September they only range between 7.4 and 8.6 inches (D).

PRODUCTION AND TREND

Since 1917-18 tobacco production in Burma, according to official estimates, has ranged between 87,000,000 and 130,000,000 pounds annually. There has been no marked trend in either acreage or production during the past 20 years except perhaps some decline since 1932-33. According to official reports, the acreage planted during the 5 years 1932-33 to 1936-37 has averaged about 10,000 acres below that planted during any of the previous 5-year periods for which estimates are available. Production during the past 5 years has averaged about 10,000,000 pounds lower. This can possibly be explained by errors in the estimates. 1/ The reported lower production, however, is supported by lower exports during the past 5 years than during previous 5-year periods, and lower leaf prices, which are conditions that are usually associated with decreases in production.

1/ Officially reported acreages and production are questionable; considerable approximation is used in arriving at acreage estimates and since 1921-22 an average yield per acre of about 0.44 long tons has been used with but little correction due to changes in conditions from year to year.

Table 11.- Total officially reported acreage and production of tobacco in Burma, 1917-18 to 1936-37

Crop year : (April-March):	Acreage : 1,000 acres	Production : 1,000 pounds	Crop year : (April-March):	Acreage : 1,000 acres	Production : 1,000 pounds
1917-18....	89	91,840	1927-28	118	116,480
1918-19....	110	112,000	1928-29	114	114,240
1919-20....	126	129,920	1929-30	117	116,480
1920-21....	101	103,040	1930-31	111	109,760
1921-22....	86	87,360	1931-32	87	87,360
1922-23....	111	114,240	1932-33	88	87,360
1923-24....	119	120,960	1933-34	103	100,800
1924-25....	119	120,960	1934-35	102	100,800
1925-26....	86	87,360	1935-36	104	103,040
1926-27....	102	100,800	1936-37	99	98,560

Compiled from "Estimates of Area and Yield of Principal Crops in India," published by Government of British India, Department of Commercial Intelligence and Statistics.

Tobacco is grown throughout the country, but production is concentrated in lower Burma in the districts between Mandalay and the Bay of Bengal. Most of it, and particularly the commercial production, is grown on the flood plains and islands of the Irrawaddy River and its tributaries. This land is flooded during much of the rainy period, June through September, and the tobacco crop is grown in the dry season, October through May.

Types of Leaf Grown

There are a number of types and varieties produced but due to promiscuous crossing practically none of them are of pure strain. They are all of the *Nicotiana tabacum* species and according to American standards might be classed as either cigar or dark air-cured types. There are few of them that closely resemble any American types. The types known as "Kama" and "Shewegyin," which are the names of the districts in which they are grown, are reported to be of American origin. "Kama" is said to have originated from the American flue-cured variety Adcock, and "Shewegyin" from American burley; however, samples of leaf of these types show little similarity to the American products. They both are dark in color, heavy bodied, and resemble the American green-river type more than flue-cured or burley.

A number of recognized cigar types including Pennsylvania, Manila, and Connecticut Broad Leaf are produced on a limited scale, but quality of the leaf is decidedly inferior to that produced in their native places. They have low oil and gum content and poor aroma and are suitable only for low-priced cigars and pipe tobacco.

Most of the Burmese native tobacco is heavy bodied, brown to dark greenish brown in color, has a low oil and gum content, and has a pungent acrid aroma. It is used primarily in cheroots.

Cultural and Curing Practices

Cultural and curing practices vary widely but are somewhat standardized in the principal producing districts along the Irrawaddy River. In these districts seedbeds are planted in September and October in the higher bottoms along the river. Plants are set in fields in the lower bottom land in December and at the rate of about 12,000 to 15,000 per acre. They are cultivated with hoes, and about 8 weeks after transplanting are topped. Harvesting, which is by priming, begins in April.

There are three general methods of curing which result in the following products (J):

- (1) Dah-li-hse, chopped or shredded tobacco used mainly for pipe smoking.
- (2) Kat-hse, cured as whole leaf and used with chopped tobacco stalks in making a special type of cheroot.
- (3) E-hse, cured as whole leaf and used in making the ordinary blunt-end type cheroot.

In general only leaves of inferior quality are cured into Dah-li-hse. The leaves are shredded with native instruments immediately after harvesting, and the resulting product spread exposed to the sun on mats laid on the ground or on the roofs of buildings. They remain in the sun from 3 to 4 days, during which time they are stirred and in some cases dampened. The product is then dampened and tightly packed in wicker baskets and covered with cloth. Some fermentation usually takes place after packing.

Leaves cured into Kat-hse are first piled six to eight deep, lower side up-most on a bamboo lattice frame covered over with another lattice frame and exposed to the sun until the midribs are dry. The frames of leaves are then piled in ricks about 3 to 4 feet high and left in the open for an additional 2 or 3 days. They are then brought in order by sprinkling water on them, tied in hands of from 40 to 60 leaves, and fermented by alternate ricking and airing.

Leaves cured into E-hse are strung on thin strips of bamboo about 12 inches long and about 15 leaves to the strip. They are then hung in the shade for a period of from 3 to 6 weeks or until the rains start in June. When brought into order by natural atmospheric conditions they are fermented by alternate ricking and airing.

Experiments with Flue-cured Leaf

The production of flue-cured leaf in Burma has not developed to the extent that it has in India. Experimental trials, however, have been made, which indicate that it can be successfully grown, and at present there is more interest in the crop than has existed in recent years.

The cigarette requirement of Burma has as yet been largely supplied by shipments from India and there has been no demand for flue-cured leaf for domestic use. Since Burma is now separated from India, it is possible that import duties will be placed on imports of leaf and tobacco products from India. If this occurs, the demand for cigarettes in Burma will probably be supplied by manufacture within the country. This would immediately create a demand for Burma-grown flue-cured leaf.

In anticipation of this possibility, cigarette manufacturers operating in India have already shown an interest in the development of flue-cured production in Burma. They have, to some extent cooperated with Burmese Government agencies in trial plantings of flue-cured leaf.

Results obtained in 1937-38 with American flue-cured types at a Burmese Government experiment farm near Mandalay were quite favorable. The leaf was grown on flood-plain sandy-loam soil of high fertility, which is characteristic of much of the land in the Irrawaddy River valley. Satisfactory results were had with both air- and flue-curing of the leaf. The portion of the crop that was flue-cured yielded a product somewhat comparable with the American Type II.

The air- or shade-curing process was found to give quite satisfactory results. In curing by this process the leaf was primed and strung as for flue-curing. It was then hung under roofs made of split bamboo. High temperatures, low humidity and the absence of dews at night resulted in the leaf curing out to an orange color only slightly darker than the portion of the crop that was flue-cured. Quality of the leaf was sufficient to enable most of it to be used in cigarettes, and, if extensive cultivation of the crop is undertaken, it is probable that much of it will be cured in this manner.

It is apparent that American flue-cured type can be grown and flue-cured in Burma at about the same cost as in India (8.6 cents per pound). The air-curing process represents only a fraction of the cost of flue-curing and the total production cost through its use would be reduced by about 25 percent.

GRADING AND MARKETING

Much that has been said regarding grading and marketing of tobacco in India is applicable to Burma. There are no standard grades and practically none of the tobacco is graded by farmers. The leaf not sold by farmers direct to consumers is purchased by dealers who do a certain amount of grading and resell it to exporters or the producers of domestic products. There has as yet been no direct action on the part of the Burmese Government to standardize grades or marketing practices.

IMPORTS AND EXPORTS 1/

Burma has never been a large exporter or importer of leaf tobacco and tobacco products. Since 1909-10 there have been only 8 years in which combined exports by sea of leaf and tobacco products to points other than India exceeded 10,000,000 pounds annually. During this same period there were only 4 years when combined imports by sea from points other than India exceeded 1,000,000 pounds annually. 2/ The trend of both imports and exports by sea has been downward in recent years.

1/ Figures given are exclusive of the trade with India.

2/ Records of shipments to and from India are not available except for 1937-38. For that year official figures of the seaborne-trade of India with Burma were as follows:

	Exports to Burma 1,000 pounds	Imports from Burma 1,000 pounds
Leaf	7,628	3,538
Cigarettes	2,058	15
Cigars	12	169
Other products	6,544	18
Total	16,242	3,740

Table 12.- Burma's exports and imports of leaf tobacco and tobacco products by sea, exclusive of shipments to and from India, 1909-10 to 1936-37 a/

Fiscal year (April-March)	Exports				Total	Leaf b/ pounds	Ciga- rettes pounds	Other products pounds	Imports				Total	Excess of exports over imports	
	Leaf b/ pounds	Ciga- rettes pounds	Cigars pounds	Other products pounds					Cigars pounds	Other products pounds	Leaf b/ pounds	Ciga- rettes pounds			
1909-10	1,000	1,000	1,000	1,000	1,000	1,000	872	1,000	1,000	1,000	7	490	1,000	1,000	1,000
1910-11	1,992	0	564	0	2,556	c/	226	5	226	372	5	40	372	3,022	1,187
1911-12	2,692	0	502	c/	3,294	5	564	3	564	621	4	51	621	10,057	10,057
1912-13	10,012	1	665	c/	10,678	2	594	1	594	637	5	47	637	10,814	10,814
1913-14	10,711	2	758	c/	11,471	1	624	1	624	677	5	49	677	11,803	11,803
1914-15	11,656	c/	821	8	12,485	1	450	2	450	507	2	49	507	5,358	5,358
1915-16	4,966	c/	857	42	5,865	6	611	0	611	656	2	45	656	9,227	9,227
1916-17	9,089	c/	787	7	9,883	0	585	c/	585	651	6	42	651	2,592	2,592
1917-18	2,596	c/	627	c/	3,223	c/	553	c/	553	906	1	47	906	7,658	7,658
1918-19	7,658	c/	703	5	8,364	c/	655	c/	655	742	1	46	742	14,630	14,630
1919-20	14,555	0	663	156	15,374	c/	750	c/	750	783	5	18	783	9,581	9,581
1920-21	9,555	6	517	286	10,364	c/	1,252	5	1,252	1,287	1	49	1,287	11,780	11,780
1921-22	12,153	5	434	475	13,067	5	516	2	516	781	2	19	781	10,992	10,992
1922-23	10,697	3	514	559	11,773	254	810	5	810	1,107	5	30	1,107	8,682	8,682
1923-24	8,954	1	202	652	9,789	264	696	0	696	759	c/	43	759	7,600	7,600
1924-25	7,922	c/	225	194	8,359	0	618	0	618	856	1	57	856	9,111	9,111
1925-26	9,458	0	220	109	9,787	0	805	0	805	942	4	55	942	12,255	12,255
1926-27	12,692	0	315	83	13,095	0	950	0	950	984	1	33	984	7,215	7,215
1927-28	7,808	10	212	167	8,197	c/	1,243	c/	1,243	1,299	1	55	1,299	4,459	4,459
1928-29	5,415	c/	207	158	5,780	c/	951	c/	951	995	2	50	995	4,280	4,280
1929-30	4,936	0	188	99	5,273	c/	496	27	496	555	4	28	555	3,959	3,959
1929-30	4,259	0	203	52	4,514	27	203	0	203	254	1	30	254	2,542	2,542
1930-31	2,589	c/	150	37	2,776	0	78	0	78	97	1	18	97	3,713	3,713
1931-32	3,726	5	71	10	3,810	0	49	0	49	60	c/	11	60	1,132	1,132
1932-33	1,142	0	50	c/	1,192	0	59	0	59	72	1	12	72	1,200	1,200
1933-34	1,235	0	57	c/	1,292	0	129	c/	129	141	c/	12	141	1,680	1,680
1934-35	1,783	0	59	0	1,842	c/	207	1	207	219	c/	11	219	826	826
1935-36	995	0	52	0	1,045	0	88	0	88	101	c/	13	101	459	459
1936-37	523	0	35	2	560	0		0			c/				

Compiled from Annual Statements of the Sea-borne Trade of British India.

a/ Net weight, i.e., excluding all packing material.

b/ Includes stems and acrap if any.

c/ Less than 500 pounds.

For the 5 years 1932-33 to 1936-37 combined exports by sea from Burma have averaged less than 1,200,000 pounds and imports less than 120,000 pounds annually. The sharp decline in exports is attributed largely to higher duties on the part of importing countries and the decline in imports to higher Burmese duties, which have been the same as for India.

The overland trade with China and Siam has been relatively small. Since 1930-31 exports by these routes have ranged between 95,000 and 260,000 pounds annually and imports between 30,000 and 645,000 pounds annually.

Table 13.- Exports and imports by land routes from Burma, 1930-31 to 1937-38 a/

Fiscal year (April-March)	Exports				Imports			
	Routes	Routes	Routes	Total	Routes	Routes	Routes	Total
	A	B	C		A	B	C	
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds
1930-31...	206	24	29	259	49	173	36	258
1931-32...	139	46	18	203	47	108	31	186
1932-33...	135	113	27	275	29	23	26	78
1933-34...	118	212	1	331	24	73	24	121
1934-35...	112	6	--	118	32	71	73	176
1935-36...	90	5	--	95	27	132	149	308
1936-37...	125	--	--	125	20	169	240	429
1937-38...	136	--	10	146	25	357	264	646

Compiled from data published in "Report on the Marketing of Tobacco in India and Burma," by Office of the Agricultural Marketing Adviser to the Government of India, Delhi.

a/ Routes A River Traffic at Bhamo; Routes B through Lashio, Heho, and Shevenyaung; Routes C through Thingannyinaung (formerly through Kawakareik).

MANUFACTURE AND CONSUMPTION

Official reports of tobacco production, imports, and exports indicate that tobacco consumption in Burma in recent years has averaged about 110,000,000 pounds (farm weight) annually. This indicates an annual per-capita consumption of about 7.0 pounds as contrasted with only about 3.0 pounds in India and approximately 6.6 pounds in the United States. A high per-capita consumption can be explained by the extensive use of cheroots. They are smoked by men, women, and children, and it is estimated that about 85 percent of tobacco consumed, or over 90,000,000 pounds, is in this form. Consumption of bidies accounts for approximately 6 percent of the total, chewing tobacco 4 percent, pipe tobacco 3 percent, and cigarettes about 2 percent.

Cheroots

There are two distinct products classed under the name of cheroots. One is a blunt end cigar, similar to the American- and European-type cheroot, and the other a special product known as the hse-baw-leik (the whacking white cheroot). The manufacture of both products is entirely by hand. There are a few relatively large concerns who produce recognized brands of the blunt-end type. However, most of their production and all of the other special type is by individuals or small establishments which

The special-type cheroot varies in size from that of an ordinary small cigar to a product 12 inches or more in length. It is made from a mixture of shredded leaf tobacco and finely cut tobacco stalks or stems wrapped in corn shucks or leaves from the cordia tree. Practically all types of Burmese tobacco are used in the product. Their consumption is confined largely to rural districts and is greatest in north Burma.

The regular blunt-end cigar-type cheroot is made largely from various types of Burmese leaf. Fairly large quantities of Indian leaf, and small amounts of imported wrapper leaf are also used. Saltpetre is frequently added to improve the "burn", and the use of flavorings such as vanilla, brandy, gin, and molasses is quite common. Consumption of this type of cheroot is greatest in south Burma and particularly in Rangoon and the other larger towns.

Prices for cheroots are unusually low, in most cases not greatly exceeding the value of the products and labor used in their production. As a consequence, they can be purchased by all classes of people.

Bidies, Chewing Tobacco, and Pipe Tobacco

Leaf consumed in bidies, chewing tobacco, and pipe tobacco, which are products comparable with those used in India, amounts to only about 14,000,000 pounds annually. A substantial part of the bidies consumed are obtained from India; however, domestic production is reported to account for something over half of the total. They are made from the lighter types of Burmese leaf and bidie-type leaf shipped from India. Chewing tobacco is prepared largely from the darker types of domestic leaf. Most of the pipe tobacco consumed is hookah tobacco similar to the Indian product.

Cigarettes

There is no cigarette manufacturing industry in Burma. Most of the country's cigarette supply is obtained from India. Shipments from this source in recent years are estimated at about 2,000,000 pounds net weight annually and imports from other countries at about 100,000 pounds. Production in Burma is limited to the output of one or two small concerns that have operated only sporadically.

PROBABLE COMPETITION FROM INDIAN AND BURMESE LEAF

The outlook at present indicates that American tobacco farmers can expect increased competition from Indian and Burmese tobacco. It is believed that the combined tobacco production in these countries, and particularly that of types of which a portion is exported in competition with American, will increase more rapidly than domestic consumption. Exports, which are largely to the United Kingdom, will likely increase substantially, and Indian and Burmese imports of American leaf will probably continue near the small amounts of recent years.

There are large districts in India and Burma suitable for tobacco production and present conditions indicate that the countries' tobacco acreage and production will increase. As population becomes larger, there will be greater competition between tobacco and staple-food and fiber crops for the use of land; however, increased population will tend to create an incentive for higher financial returns per acre which, if present conditions continue, could be more easily realized

from tobacco than from most other crops. In comparison with most crops of the countries, tobacco gives larger financial returns per acre and requires more labor to grow an acre. Income per unit of labor during recent years from tobacco, and particularly income from exported types, has been larger than from most crops. With increases in the supply of cheap labor and a need for larger cash returns per acre, tobacco would continue in a favorable position.

Expansion in tobacco production will be largely from increases in the acreage of improved native varieties and of foreign types, including American-type flue-cured. It is expected that the area devoted to the present unimproved native types will decrease, chiefly because of relatively lower prices paid for such types.

Exports of leaf tobacco from India and Burma are likely to increase further, but exports of tobacco products may be expected to continue near the low level that has prevailed during the past few years.

Exports of leaf of native types are expected to decline for the next few years. Japan has taken substantial quantities of such leaf from India, but has recently introduced rigid economy measures that call for restricted imports of tobacco. These measures are expected to continue in effect until at least the close of the Sino-Japanese conflict and for their duration imports into Japan will be practically nil. Exports to Aden, the Straits Settlements, Ceylon, and other nearby points will probably not change materially. Exports of native leaf to the United Kingdom and continental Europe are expected to increase slightly during the next few years, but they will probably not offset the decreased exports to Japan. From a long-time standpoint, however, it is believed that the quality of native types might be improved sufficiently to enable them to replace more of the darker American types in the United Kingdom and possibly in continental Europe. Increased sales in these markets, together with a renewal of exports to Japan, would result in exports several years hence being materially larger than those of recent years.

Exports of American-type burley and other foreign air-cured types may increase slightly. At present, however, there is no indication that they will reach a large volume within the next few years.

If the present duty preference on Empire leaf granted by the United Kingdom is continued, exports of Indian flue-cured will likely continue to increase during the next few years and exports from Burma may be initiated. Exports to continental Europe and flue-cured consuming areas other than the United Kingdom may become important but are not expected to approach the volume exported to the United Kingdom. Cigarette manufacturers in that country are using larger portions of Indian flue-cured in place of American and present indications are that this increase will continue.

Intershipments of leaf and tobacco products between India and Burma are expected to continue at about the volume of recent years, provided the customs unity between the two countries is not discontinued. If in 1940, when the present customs agreement expires, duties comparable with those now levied on leaf and tobacco products from strictly foreign sources is imposed on the interchange of leaf and tobacco products between the two countries, this trade will be largely discontinued. For a few years Burma would need to secure most of its cigarette requirements from India. In time, however, cigarette production in Burma, largely from Burmese flue-cured leaf, would replace imports from India.

Imports of leaf into India and Burma may increase slightly with higher cigarette consumption. American flue-cured leaf, which has comprised most of the imports during recent years, will continue to be needed in the manufacture of higher-grade cigarettes. The market for such cigarettes, however, will remain restricted to the requirements of the European population and wealthy Indians.

Imports of tobacco products, and especially cigarettes, are expected to decline and will be largely restricted to imports of certain specialty brands of high-grade British and Turkish type cigarettes. It is expected that import duties will continue to favor the domestic manufacture of cigarettes and other tobacco products.

Total tobacco consumption in India and Burma will probably increase moderately during the next several years. Larger population will account for most of the increase. It is also expected that a slightly higher per-capita consumption will occur as a result of increased cigarette consumption. Domestic manufacturers in India are now producing low-quality cigarettes that sell at prices somewhat comparable with those for bidies, and it is probable that there will be a shift from bidies to cigarettes. This is not certain, however, and it is obvious that quantities of tobacco used in cigarettes will for many years not approach quantities used in bidies. There is no real prospect for a sharp increase in purchasing power of the masses, which would be necessary before cigarettes could in general replace bidies and other local products.

Increased cigarette consumption may be prevented by taxes. Many Indian States and other political subdivisions already have taxes on cigarettes. Numerous others are contemplating the introduction of taxes and in places where taxes already exist there is a trend toward higher rates. The central governments of both India and Burma are also considering tobacco taxes. Where cigarette taxes have been introduced in India, they are not always accompanied by taxes on bidies and other tobacco products. If taxes are levied on other products the rate is often lower than on cigarettes, which makes their sale in competition with other products more difficult. The production of tobacco products other than cigarettes is carried on largely as a home industry, and by numerous small manufacturers, which makes taxation difficult and in some cases practically impossible. Therefore, any increase in taxation of tobacco products will probably tend to make cigarette sales more difficult.

An important increase in cigarette consumption could probably only occur in low-grade cigarettes sold in competition with bidies. Such cigarettes at present are largely made from Indian native leaf. In time, increased proportions of Indian flue-cured may be used in them, but a substantial part will probably continue to be native leaf, which can be produced with considerably less cost than Indian flue-cured.

APPENDIX I

Imports by sea of leaf tobacco and tobacco products from principal sources into India including Burma, 1931-32 to 1937-38 a/

Origin	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38 b/
	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000	:1,000
LEAF and STRIPS c/	:pounds	:pounds	:pounds	:pounds	:pounds	:pounds	:pounds
United States.....	2,484:	4,653:	2,092:	1,763:	1,501:	3,061:	2,966
United Kingdom d/.....	147:	350:	2,022:	1,133:	358:	170:	38
Continental Europe e/...	54:	82:	59:	44:	51:	38:	35
Others.....	160:	31:	14:	37:	11:	14:	3,559
Total	2,845:	5,116:	4,187:	2,977:	1,921:	3,283:	6,598
Total into Burma.....	0:	0:	0:	f/ :	1:	0:	--
Net Total.....	2,845:	5,116:	4,187:	2,977:	1,920:	3,283:	6,598
CIGARETTES g/	:	:	:	:	:	:	:
United States.....	16:	12:	13:	14:	20:	22:	29
United Kingdom d/.....	1,190:	721:	475:	557:	780:	877:	937
China, Hongkong, & Japan:	204:	83:	97:	32:	24:	12:	3
Others.....	26:	16:	8:	11:	7:	6:	24
Total.....	1,436:	832:	593:	614:	831:	919:	993
Total into Burma.....	78:	49:	59:	129:	207:	88:	--
Net Total.....	1,358:	783:	534:	485:	624:	831:	993
CIGARS h/	:	:	:	:	:	:	:
United Kingdom d/.....	1:	f/ :	1:	1:	f/ :	1:	11
Continental Europe e/...	4:	2:	2:	2:	2:	2:	1
Others i/.....	16:	13:	14:	9:	11:	11:	179
Total.....	21:	15:	17:	12:	13:	14:	191
Total into Burma.....	1:	f/ :	1:	f/ :	f/ :	f/ :	--
Net Total.....	20:	15:	16:	12:	13:	14:	191
OTHER PRODUCTS j/	:	:	:	:	:	:	:
United States.....	12:	10:	10:	9:	16:	15:	14
United Kingdom d/.....	156:	71:	78:	80:	68:	66:	66
Other.....	7:	8:	9:	9:	10:	10:	28
Total.....	175:	89:	97:	98:	94:	91:	108
Total into Burma.....	13:	11:	12:	12:	11:	13:	--
Net Total.....	157:	78:	85:	86:	83:	78:	108

Compiled from "Annual Statements of the Sea-borne Trade of British India."

a/ Fiscal year April-March.

b/ Primarily strips.

c/ Figures do not include imports into Burma but do include imports from Burma which are included with others and total as follows: leaf and strips 3,538,000 pounds, cigarettes 15,000, cigars 169,000, other products 18,000 pounds.

d/ Includes Irish Free State.

e/ European countries that are separately reported.

f/ Less than 500 pounds.

g/ Net weight excluding all packing material except cigarette paper.

h/ Net weight excluding all packing material except individual cigar wrapping.

i/ Largely from Philippine Islands.

j/ Net weight excluding all packing material.

APPENDIX II

Exports by sea of leaf tobacco and tobacco products by principal destination from India, including Burma, 1931-32 to 1937-38 a/

Destination	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38
	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000
LEAF TOBACCO <u>c/</u>	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds	: pounds
United Kingdom <u>d/</u>	: 10,626	: 9,047	: 13,581	: 9,273	: 11,823	: 13,633	: 22,049
Continental Europe <u>e/</u>	: 1,130	: 1,819	: 3,892	: 1,503	: 1,245	: 1,143	: 1,430
Aden and Dependencies	: 4,427	: 4,394	: 5,398	: 6,040	: 7,315	: 8,336	: 7,182
Ceylon	: 151	: 81	: 215	: 275	: 198	: 192	: 93
Straits Settlements <u>f/</u>	: 2,291	: 1,187	: 1,678	: 1,925	: 1,749	: 1,879	: 1,493
China, Hongkong & Japan	: 6,565	: 3,645	: 4,027	: 7,094	: 6,161	: 3,174	: 2,317
Others	: 237	: 720	: 415	: 239	: 252	: 168	: 7,896
Total	: 25,427	: 20,893	: 29,206	: 26,349	: 28,743	: 28,525	: 42,460
Total from Burma	: 3,726	: 1,142	: 1,235	: 1,783	: 993	: 523	: --
Net Total	: 21,701	: 19,751	: 27,971	: 24,566	: 27,750	: 28,002	: 42,460
CIGARETTES <u>g/</u>	: :	: :	: :	: :	: :	: :	: :
Ceylon	: 121	: 75	: 141	: 204	: 228	: 292	: 320
Straits Settlements <u>f/</u>	: 180	: 178	: 113	: 96	: 98	: 75	: 52
Others	: 12	: 11	: 4	: 4	: 2	: 5	: 2,105
Total	: 313	: 264	: 258	: 304	: 328	: 372	: 2,477
Total from Burma	: 3	: 0	: 0	: 0	: 0	: 0	: --
Net Total	: 310	: 264	: 258	: 304	: 328	: 372	: 2,477
CIGARS <u>h/</u>	: :	: :	: :	: :	: :	: :	: :
United Kingdom <u>d/</u>	: 24	: 29	: 34	: 37	: 43	: 29	: 4
Aden and Dependencies	: 2	: 4	: 5	: 5	: 5	: 7	: 2
Ceylon	: 12	: 18	: 12	: 8	: 10	: 10	: 11
Straits Settlements <u>f/</u>	: 59	: 28	: 6	: 12	: 9	: 5	: 1
Others	: 21	: 11	: 7	: 8	: 6	: 9	: 20
Total	: 118	: 90	: 64	: 70	: 73	: 60	: 38
Total from Burma	: 71	: 50	: 37	: 38	: 52	: 35	: --
Net Total	: 47	: 40	: 27	: 32	: 21	: 25	: 38
OTHER PRODUCTS <u>i/</u>	: :	: :	: :	: :	: :	: :	: :
Continental Europe <u>e/</u>	: 0	: 0	: 0	: 74	: 58	: 0	: 127
Ceylon	: 42	: 14	: 38	: 18	: 6	: 17	: 23
Straits Settlements <u>f/</u>	: 6	: 3	: 7	: 14	: 3	: k/	: 30
Others <u>j/</u>	: 358	: 359	: 386	: 547	: 387	: 330	: 6,928
Total	: 404	: 376	: 431	: 653	: 454	: 347	: 7,108
Total from Burma	: 10	: k/	: k/	: 0	: 0	: 2	: --
Net Total	: 394	: 376	: 431	: 653	: 454	: 345	: 7,108

Compiled from "Annual Statements of the Sea-borne Trade of British India."

a/ Fiscal year April to March.

b/ Figures do not include exports from Burma but do include exports to Burma which are included with others and total as follows: Leaf tobacco 7,628,000 pounds, cigarettes 2,058,000 pounds, cigars 12,000, and other products 6,544,000.

c/ Includes stems and scrap, if any.

d/ Includes Irish Free State.

e/ Total for European countries that are separately reported.

f/ Includes Labuan and for items except other products Federated Malay States.

g/ Net weight excluding all packing material except cigarette paper.

h/ Net weight excluding all packing material except individual cigar wrapping.

i/ Net weight excluding all packing material.

j/ Primarily to Maldives Islands and Asiatic Turkey. k/ Less than 500 pounds.

APPENDIX III

Sample contract between Flue-cured grower and Indian Leaf Tobacco Development Company Ltd.

No. 1 B.-RYOT'S BARN (ERECTED.)

(FOR RYOT'S GRADING)

AN AGREEMENT made this _____ day of _____ one thousand nine hundred and thirty _____ between _____ son of _____ by caste _____ residing at Village _____ Sub-district _____ District _____ (hereinafter called "the Contractor" which expression where not repugnant to the context shall include his heirs and legal representatives) of the one part and INDIAN LEAF TOBACCO DEVELOPMENT COMPANY LIMITED, a Company incorporated in the British Isles having its Registered office at 13, Athol Street, Douglas, in the Isle of Man and a Branch Office at _____ (hereinafter called "the Company" which expression unless repugnant to the context shall include its successors and assigns) of the other part.

WHEREAS the Contractor is in possession of the piece of land bearing R.S. No. _____ Village _____ Sub-district _____ District _____ and of the _____ Flue-curing Barn size _____ erected thereon.

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. (a) The Contractor shall grow in the tobacco growing season 193 /3 a sufficient acreage of "Harrison Special" tobacco to produce _____ lbs. of flue-cured tobacco.

(b) In order to assist the Contractor, the Company will endeavour to supply him with seedlings, from its _____ Nurseries at the rate of Rs _____ per thousand, in accordance with the Contractor's letter dated _____. The Contractor shall on or before the 1st. day of March 193 _____ pay for such seedlings as may be supplied to him by the Company. The Contractor shall plant the said land with such seedlings as may be supplied to him by the Company under this clause and he shall not plant the said land with any other seedlings except in the event of the Company being unable to supply the seedlings in which case he shall be at liberty to plant the said land with seedlings procured elsewhere.

2. (a) The Contractor agrees to use the flue-curing barn above-mentioned (hereinafter called "the said barn") solely for the purpose of flue-curing tobacco grown by him in accordance with Clause 1 hereof or purchased by him in accordance with Clause 3 hereof during the flue-curing season beginning on the 1st. day of January 193 _____ and ending on the 1st. day of April 193 _____ and that he will not permit any other person to use the said barn during the said flue-curing season without the written consent of the Company previously obtained.

(b) Of the tobacco to be flue-cured in the said barn in accordance with the provisions of this Agreement the Contractor agrees to sell and the Company agrees to purchase from the Contractor, subject to the terms and conditions hereinafter contained _____ lbs. of flue-cured tobacco grown by the Contractor in accordance with Clause 1 hereof or purchased by him in accordance with Clause 3 hereof. The Company shall be entitled to refuse to purchase any tobacco flue-cured in the said barn which is in excess of _____ lbs.

3. (a) If the tobacco grown by the Contractor should be damaged by rain or disease or for any other reason be unfit for flue-curing, or if the said tobacco should be late in maturing and the Contractor be unable to fill his barn when ripe tobacco

should be available for flue-curing, the Company's representatives may give permission to the Contractor by letter to purchase and flue-cure "Harrison Special" tobacco and such letter shall stipulate the quantity of such tobacco to be so purchased and flue-cured.

(b) When the tobacco grown by the Contractor is ready for harvesting, if the Contractor considers that any of the tobacco grown by him would, if flue-cured, prove to be surplus to the quantity mentioned in Clause 1 (a) hereof or that any of the tobacco is unfit for flue-curing he may apply to the Company's representative for sanction to rack-cure such tobacco. Such sanction, if given, shall be given by letter and such letter shall stipulate the maximum weight of such tobacco which the Company will purchase from the Contractor when rack-cured.

4. The Contractor shall at all times during the planted period keep all fields planted with tobacco the subject of this Agreement clean and free from "Tokras", and in the event of his failing to do so, the Company may at its discretion terminate this Agreement forthwith by giving the Contractor notice in writing.

5. (a) All tobacco the subject of this Agreement flue-cured by the Contractor shall be graded by the Contractor within 72 hours of the completion of each flue-curing.

(b) The grades shall be numbered 1 to 5. For the purpose of grading under this Agreement "long" leaf shall mean leaf 9" in length or longer and "short" leaf shall mean leaf less than 9" in length.

(c) All long, sound and unbroken leaf except dark leaf or green leaf shall be placed according to colour and quality in grades 1, 2 or 5 as the case may be.

(d) All long, sound and unbroken bright leaf with a light green tinge shall be placed in grade 3.

(e) All short bright leaf and bright broken leaf shall be placed in grade 4.

(f) No unsound tobacco, such as short leaf dark leaf, badly sponged leaf, diseased leaf, burnt leaf, tip leaf suckers, fine scrap, sweepings or dust shall be placed in any of the aforesaid grades and no unsound tobacco will be purchased by the Company. No green leaf other than such as may be classifiable as the Company's standard grade 3 and no dark leaf will be purchased by the Company except such as may be purchaseable under the provision of Clause 7 (c) hereof.

(g) Samples of the Company's standard grades 1 to 5 (standard in colour and soundness and representative of the average quality of the particulars grade) can be inspected by the Contractor on request at the Company's premises at _____.

6. All tobacco so flue-cured and graded shall be delivered by the Contractor at his cost at the Company's premises hereinbefore mentioned within 96 hours of the completion of each flue-curing, unless an extension of time for delivery has previously been obtained in writing from the Company.

7. (a) The Contractor agrees to sell and the Company agrees to purchase, subject to Clause 2 (b) and 5 all tobacco so flue-cured, graded and delivered as aforesaid at the following rates:-

For No. 1	Grade from	Rs. 190/-	upwards	per	candy of 500 lbs.	according to	quality
" "	2	" "	75/-	"	"	"	"
" "	3	" "	50/-	"	"	"	"
" "	4	" "	50/-	"	"	"	"
" "	5	" "	15/-	"	"	"	"

provided that the company's representative is satisfied that such tobacco is correctly graded in accordance with the Company's standard grades. If in the opinion of the Company's representative the tobacco or any part thereof is not correctly

graded he shall be at liberty to refuse to accept such tobacco or any part thereof or to instruct the Contractor to re-grade the tobacco or any part thereof correctly. In the latter event the Contractor shall re-deliver the tobacco correctly graded at his cost within 48 hours of such instruction.

All tobacco which has not been rejected under any of the foregoing provisions shall then be weighed and priced according to grade and quality.

(b) The decision of the Company's representative as to whether the tobacco is correctly graded or not, as to its quality and weight and as to the price to be paid therefor in accordance with the provisions of this Agreement shall be final and binding on the parties to this Agreement.

(c) The Company reserves the right (exercisable at its option) to purchase, at market rates, such sound green leaf inferior in colour or quality to its standard No. 3 grade and/or such long dark leaf as may be suited to its requirements.

8. All tobacco which may have been rack-cured by the Contractor under the provisions of Clause 3 (b) hereof shall as soon as it has been rack-cured be delivered by the Contractor at his cost at the Company's premises at _____ . The Contractor at the time of delivery shall produce to the Company's representative the written sanction referred to in Clause 3 (b) hereof. Upon such delivery of the rack-cured tobacco and production of the said written sanction the rack-cured tobacco shall be inspected by the Company's representative. Any rack-cured tobacco which in the opinion of the Company's representative is not suited to the Company's requirements or which is not covered by the said written sanction shall be rejected by the Company. The remainder of the rack-cured tobacco will then be accepted and weighed.

9. The price to be paid by the Company to the Contractor for the rack-cured tobacco delivered by the Contractor and accepted by the Company under Clause 8 hereof shall upon such acceptance be determined by the Company's representative according to the quality thereof; provided always that the maximum and minimum prices to be paid by the Company for such rack-cured tobacco shall be Rs. 45/- per candy and Rs. 15/- per candy respectively. The decision of the Company's representative as to the quality and price to be paid for the said rack-cured tobacco shall be final.

10. Payment for all tobacco (whether flue-cured or rack-cured) accepted by the Company shall be made to the Contractor personally at the Company's premises at _____ as and when the tobacco is accepted by the Company or as soon thereafter as the Contractor may attend at such premises.

11. (a) The Company shall not be responsible for any loss, injury or deterioration which may occur or result to any of the Contractor's tobacco whilst the same is on the Company's premises prior to the acceptance and weighing in thereof or the rejection thereof by the Company, such tobacco being at the risk of the Contractor until the same is accepted as aforesaid and weighed in at the Company's premises.

(b) Any tobacco delivered by the Contractor but not accepted by the Company shall be removed by the Contractor from the Company's premises at his cost on the day of non-acceptance and shall be at the risk of the Contractor from the time of non-acceptance.

12. The Company will, if requested in writing by the Contractor to do so, give carefully considered advice on all matters connected with the proper cultivation of the tobacco to be grown by him and the artificial fertilizing of the land on

which the tobacco is to be grown by him under this Agreement and with the efficient working of the said barn but only on the condition that the Company shall not be in any manner whatsoever responsible for results.

13. If the Company's representative for any reason considers that the Contractor is not working the said barn in a satisfactory manner, a written notice will be given to the Contractor by the Company warning him to rectify the error and work the said barn forthwith efficiently.

14. In the event of the Contractor committing a breach of any of the terms or conditions of this Agreement which on his part are to be complied with, the Company shall in such event be at liberty to terminate this Agreement forthwith by giving the Contractor notice in writing, and upon such termination the Contractor shall immediately remove from the Company's premises all of his tobacco which had not, prior to such termination, been accepted as aforesaid.

15. Any notice to the Contractor under this Agreement may be served personally or by being left at the said barn or at his last known place of address, or by being sent by Registered Post addressed to the Contractor at his last known place of address. Any notice sent by Registered Post shall be deemed to have been served at the time when in the ordinary course of post it would be delivered.

16. The Company's representative herein referred to shall be the manager or the assistant manager at the Company's branch at _____.

IN WITNESS WHEREOF the said _____
and _____ as the duly constituted Attorney of the Company
have hereunto set their hands the day and year first above written.

Signed by _____)
(herein called "the Contractor") in the)
presence of:)

Signed by _____)
as the duly constituted Attorney of the)
within named Indian Leaf Tobacco)
Development Company Limited in the)
presence of:)

APPENDIX IV

Rules for grading and marking Indian tobacco established under the authority of "The Agricultural Produce (Grading and Marking) Act, 1937."

1. Short title and application - (1) These rules may be called the Agricultural Produce (Grading and Marking) (Tobacco) Rules, 1938.

(2) They shall apply to tobacco grown in India.

2. Grade designations - Grade designations to indicate the quality of unmanufactured tobacco (Nicotiana tabacum) grown in India are set out in column 1 of schedules I to III.

3. Definition of quality - (1) The general characteristics of quality indicated by such grade designations shall be as follows:

All the tobacco shall consist of clean and properly cured leaf free from excess moisture, stems and other extraneous matter.

The tobacco may consist of leaf or strips (S) but not of mixtures thereof, and may be reconditioned (mechanically redried) (R) or not.

(In the case of "strips" the lower part of the midrib shall be removed to the extent of at least 50 percent of the leaf.)

(2) The special quality indicated by such grade designations is set out, against such designations, in columns 2 to 4 of schedule I, in respect of flue-cured Virginia, of schedule II in respect of Sun-cured Virginia and of schedule III in respect of Sun-cured "Natu" (Country).

4. Grade designation mark - The grade designation mark shall consist of the word 'AGMARK' together with the following particulars:

- | | | | |
|-------------------|------------------|------------------------|---|
| (a) Reconditioned | - The letter "R" | (d) Variety of tobacco | - The letter "V" in the case of Virginia and the letter "N" in the case of Natu (Country) |
| (b) Strips | - The letter "S" | | |
| (c) Flue-cured | - The letter "F" | | |

(e) Grade designation - An Arabic letter

5. Method of marking 1/ - The grade designation mark, together with the following particulars, so far as applicable, shall be clearly indicated on each package by means of a stencil having letters at least 2 inches high.

(a) The name of the district - To be indicated by the name of the district or the allotted abbreviation.

(b) Year of harvesting - The last two figures of the year.

6. Example of marking - The marks "AGMARK G. 38, R.S.F.V.I." on a package shall represent Guntur District, 1938 harvest, Reconditioned, Stripped, Flue-cured, Virginia, Grade I tobacco. Similarly the marks "AGMARK G. 38 N. 3" represent Guntur District, 1938 harvest, Sun-cured "Natu" (Country), Grade 3 tobacco.

7. Special marking rules - In years when there are rains at the time of harvest small brown spots appear on the leaves after it is cured. In such years, provided the area of such spots does not exceed 0.5 percent in the case of First Grade, 1 percent in the case of Second Grade, 1.5 percent in the case of Third Grade, 2 percent in the case of Fourth Grade and 2.5 percent in the case of Fifth Grade, slightly spotted leaf, may be packed under the grade designations but shall bear a special mark (PP) following the grade designation mark.

8. Method of packing - (1) Graded tobacco shall be packed in wooden hogsheads or wooden cases, or in bales securely wrapped in gunny cloth.

(2) Each covering shall contain only tobacco of one grade designation, all of which shall have been harvested in the year specified.

1/ The absence of any or all of the letters "R", "S" and "F" would mean respectively that the leaf is not reconditioned (mechanically redried), that the leaf is not stripped and that the leaf is sun-cured.

Grade designations and definition of quality of unmanufactured tobacco
grown in India

Grade designations:	Color <u>2/</u>	Texture <u>2/</u>	Blemish <u>3/</u>
Schedule I. Flue-cured Virginia <u>1/</u>			
1	Bright lemon	Fine	Slight greenish tinge at veins; free from sponginess.
2	Lemon	Good to medium	Small light green patches and greenish tinge at veins with very light and occasional spongy spots at tips and edges of leaf not exceeding 1/32nd of the total area.
3	Dull lemon (Brights)	Medium	Small light green patches and greenish tinge at veins; light spongy spots the area of which shall not exceed 1/16th of the total.
4	Yellow with greenish tinge (Semi-Brights)	Medium	Small light green patches and greenish tinge at veins; light spongy spots the area of which shall not exceed 4/16ths of the total.
5	Dull yellow (Colory)	Coarse and thin (not papery) or mixed	Greenish and light brown patches extending to not more than 5/32nd; sponginess and scalding not exceeding 8/16ths of the total area.

Schedule II. Sun-cured Virginia <u>1/</u>			
1	Bright	Good	Nil
2	Light brown	Medium	1/16
3	Dark brown	Medium	2/16

Schedule III. Sun-cured <u>Natu</u> (Country)			
1	Bright	Good texture and body	Nil
2	Light brown	Medium texture and body	2/16
3	Light dark	Medium texture and body	2/16
4	Heavy brown	Heavy body	2/16
5	Heavy dark	Heavy body	2/16

- 1/ Virginia tobacco shall consist of the following varieties; viz., Harrison Special, Cash, Adcock, and hybrids of these varieties having similar characteristics
- 2/ To allow for accidental errors in grading a tolerance of 1/16th for color and texture in respect of leaves corresponding to the specifications in the next lowest grade will be allowed except in Grade I.
- 3/ Blemish shall include green patches, brown spots and patches, damage due to pests and diseases, breakage in handling, sponginess, scalding, black spots or other damage. The figures of proportion given in column 4 refer to the total area of leaf affected in any sample.
- 4/ Natu (Country) tobacco may include any of the indigenous varieties of *Nicotiana tabacum* but all the leaves in any sample or container shall have similar varietal characteristics.

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